Red Rock Lakes NWR - Narrative Report - 1969

# NARRATIVE REPORT FOR

RED ROCK LAKES NATIONAL WILDLIFE REFUGE

January 1, to December 31, 1969

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

MONIDA, MONTANA

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#### RED ROCK LAKES NATIONAL WILDLIFE REFUGE

MONIDA, MONTANA

January 1, 1969

through

December 31, 1969

## PERSONNEL

Owen H. Vivion
Eugene D. Stroops
John T. Annear Assistant Refuge Manager (Transferred 05/05/69)
Ronald V. Papike Assistant Refuge Manager (E.O.D. 05/05/69)
Ray A. Hotchkiss
Katie L. Hotchkiss
Rebecca J. Papike

## Temporary Personnel

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## RED ROCK LAKES NATIONAL WILDLIFE REFUGE

January 1 - December 31

1969

#### I GENERAL

#### A. Weather Conditions

Snowfalls to the beginning of the year totaled 20 inches, slightly above normal. Not long into January we had an indication of what to expect for the winter. Nine inches of snow on the ground at the beginning of the month grew to 40 inches by the end. Almost 80 inches fell during this time. February, March, and April added 25 inches.

On the two snowcourses above refuge headquarters the snowfall was the heaviest ever recorded. Lakeview Ridge with a water content of 24.2 inches and Lakeview Canyon with a water content of 21.0 inches were 77% and 79% higher than last year's snowpack and 110% above the average. The snowfall was well over 200 inches on these two areas.

If the snows were often and deep, the temperatures were mild. The lowest temperature for the year was -27 (this year we've already had lows below -30).

Sandhill cranes traditionally herald the coming spring. This year they arrived March 30, almost two weeks earlier than normal. May was warm and dry and by the end of the month only the deepest drifts remained on the valley floor.

Fall was pleasantly mild with little snow. So little that we were able to travel in the valley with wheeled vehicles to the end of December.

With mild temperatures and copious snowfalls it might have been a good weather year. Unfortunately aperiod of 11 days during the last of June and first of July which brought freezing temperatures and over an inch of rain proved disastrous to this year's trumpeter swan cygnets. The cygnets couldn't cope with the prolonged rain and low temperatures and about 90% died.

WEATHER 1969

Temperatures						Precipitation						
Month	Max.	Ave	Min.	Ave.	Month Mean	Moisture	Normal	Diviation From Normal				
January February March April May June July August September October November December	40 39 51 65 73 80 83 88 82 62 65 42	27 25 28 47 63 63 75 81 69 46 39 27	-18 -19 -27 16 21 25 31 30 23 2 - 1	8 5 2.6 24 32 34 43 40 31 19	17 15 13 35 47 48 59 60 51 65 26 14	7.51 1.05 .15 .77 .97 2.84 1.12 .16 .48 1.58 .61	1.97 1.29 1.50 1.40 2.55 2.67 1.18 1.32 1.50 1.31 1.22 1.64	5.54 24 -1.35 63 -1.58 17 60 -1.16 -1.50 83 .36 03				
EXTREMES	88		- 27			7.51						

#### B. Habitat Conditions

#### Water

Of course with the heavy snows of the winter we had plenty of water throughout the summer. Lower Lake water levels were the same as 1968 during the peak runoff months of April and May but remained about 10 inches higher throughout June and July. Water levels returned to normal in August (approximately 8 inches above crest elevation).

Spring and summer rains came at the right times for excellent range grass production and contributed 6.86 inches to the total annual precipitation of 17.24 inches. However, the snow-pack, as it slowly melted was primarily responsible for maintaining stream flows during the summer. Small streams and springs that are usually dry by the middle of August kept flowing all summer.

Water flowing into the refuge was measured at 27 different locations and totaled 160,963 acre feet. Of this, 38,063 acre feet were diverted over refuge grasslands to improve habitat, increase forage production, and establish a history of water use. Water diversion during the heavy runoff in the spring also reduced the amount of silt reaching the lakes and spreaded it harmlessly (and probably with some benefit) over the rangelands.

#### Food and Cover

The heavy snows on the uplands knocked all but the coarsest rye grasses and scattered sagebrush plants to the ground leaving sparse nesting habitat for waterfowl. Upland nesters found nesting sites in extensive stands of sedges (Carex) and rushes (Juncus) on hummocks and islands of high ground.

Over-water nesters found emmergents dense and extensive throughcut Upper and Lower Lakes and the Rivermarsh. Water Levels in the marsh reached maximum height soon after iceout and steadily lowered without flooding nests.

Timely rains in June and July stimulated grass production for excellent summer cover on the uplands. While too late for nesting waterfowl it proved an excellent nursery for sandhill cranes, foxes, antelope, skunks, and badgers.

Aquatic plant production this year in Lower Lake compares favorably with 1967 (15.5 tons in 1967; 16 tons in 1969). A change in species composition was noted, but may be due more to sampling techniques than actual changes in the plant community.

Results of the 1966 and 1968 aquatic plant surveys of Upper Lake, and Culver, Widgeon, and Shambow Ponds show excellent production of desirable pondweeds (Elodea, Potamogeton pectinatus which appear to be preferred by swans over several other aquatic plant species). Total plant production ranged from 7.5 tons per acre in Upper Lake to 62 tons per acre in Culver Pond.

Information gathered to date indicates present water management favors copious aquatic plant growth. Shifts in species compostion are often subtle and not enough data have been gathered to show any definite changes.

#### II WILDLIFE

#### A. Migratory Birds

#### Trumpeter Swan

Total trumpeter swan use-days for the year were 85,050, compared to 88,711 in 1969 and 91,105 in 1967, differences of 4.2% and 6.7%. Peak numbers of 330 occurred during January, February and March when we were feeding at MacDonald and Culver Ponds.

The high of 1967 reflects a high use of Upper Lake by non-breeding subadults. Whereas in 1968 and again in 1969 the nonbreeders moved 20 miles west to spend most of the summer on Lima Reservoir. Often, high use figures for the fall and winter period reflect uses of the refuge feeding stations during severe weather rather than changes in population levels.

The highest number of nesting pairs (60) were found in 1966 and 1968 while in 1967, the highest use year, 53 pairs were noted and total production for the year was only 20. The tri-state census for 1967 was lower than 1968, 535 and 585, and lower than any year since 1962. A look at data gathered since 1936 may give a clearer picture of the present status of refuge swan populations than do either use-days or production figures.

In 1936 the tri-state (Montama, Idaho, and Wyoming) census showed a swan population of 111 for the lowest count made on the census. Subsequent counts show a steady upward trend. The population reached 200 by 1941, 300 by 1946, 400 by 1949, and 500 by 1951 when the tri-state census revealed 543 birds. The average populations since then have been 568 with extremes in numbers ranging from 448 in 1957 to 651 in 1954. The population in 1968 was only 42 birds higher than the 1951 population of 543 birds. This shows that the tri-state population reached a saturation point in 1951 with no apparent trends either up or down since then.

The steady increase in the continental trumpeter swan populations since 1951 is due to the success of transplants, increase in captive birds, and increase in the Canada and Alaska birds.

Ever since population data has been recorded, the tri-state population has shown a steady drain that seems too high to be attributed to mortality. In the five-year period 1937-1940 the number of all-white birds that were found in

the following year's population was 31% less than expected. In subsequent five periods the mean annual loss of projected birds has averaged 14%. In other words, from the time that the birds were counted in the fall until the next fall census all—white birds (over a year old) had a mean annual loss of 14%. This seems excessively high to be attributed soley to mortality and shows a life expectancy of only 7 years. Part of this loss may be attributed to birds being forced to venture farther afield, than we think, in search of suitable nesting habitat. A four year neck banding program did not resolve this speculation.

Although refuge populations show an increase in numbers and a levelling off in 1951 similar to that for the tri-state population, yearly increases in cygnet production to flight stage are not so well defined. During the five-year period 1964-1968 average annual cygnet production was 40. But in the five-year period 1937-1941 average annual cygnet production was actually higher at 49. There is also more variance in later cygnet production: 22, 16, 54, 20, 90 for the 1964-1968 period; 51, 42, 59, 48, 44, for the 1937-41 period.

This data raises many questions. Perhaps, in cooperation with other workers and agencies, we may find the answers.

#### Transfers

Seventeen trumpeter swans were transferred this summer: two to the Charles M. Russel Game Range; four to the Nebraska Game and Parks Commission; 2 to Crane Creek Wildlife Experimental Station; 7 to four different zoological gardens; 2 to a private aviary in California. Six are now dead.

One bird, shipped air express died en route. Two birds sent to Ohio by air express took 58 hours getting to their destination, one died a short time after arriving. Four birds, two adults and two cygnets, were picked up in Idaho Falls and flown directly by private plane to Nebraska. Both cygnets and one adult died. One of the Charles M. Russel birds died.

We recommend that the trumpeter swan transfer program be closely reviewed. All future transfers should be restricted to the establishment of breeding flocks and the recipients should pick up the swans at the refuge and transport them in proper carrying facilities. All other future requests should by filled by zoological gardens.

#### Whistling Swan

On the morning of October 29 Lower Lake was resplendent with white as 1,500 whistling swans came to rest on the ice. For two weeks they remained in these numbers.

They filled the air with their loud, musical calls as they circled in groups of 50 to 100 reaching to the tops of the mountains before swinging south into Idaho. This same circuitous route was followed again in late afternoon as they streamed back into the valley. For a few short weeks they took over the valley, appropriated the choicest resting places, and drowned out the protests of their larger cousins. By November they were gone.

#### Swan Use-Days

Year	Use-Days	Year	Use-Days
1965 1966	25,920 38,920	1968 1969	28,000
1967	8,393		, -,

#### Geese

Thirteen pairs of Canada geese were counted on the refuge on April 29. Eleven broods, with a total of 48 goslings, and one abandoned nest with 8 eggs were subsequently located. Last year's production was 87, and production in 1967 was 100.

Total use-days were in keeping with the steady downward trend since 1965 but at 54,740 were 14% above the 1968 total of 47,159. In 1965 use-days were 120,036.

Most of the use is from nonbreeding moulters on Upper Lake in the summer and migrants on the ponds in the fall. Approximately 5,000 moulting geese spent the summer on Lima Reservoir, 20 miles west of the refuge. Whenever some of these birds from Lima choose to stay on Upper Lake during the moult, use-days go up. This is what happened in 1965 and in 1959 when the record high was set at 210,000 use-days.

Snow geese were not seen this year but a report from a hunter of several, large, white birds with black wingtips suggests at least a passing visit from these birds during October.

#### Ducks

Use-days for the year were 4,742,395, down from last year by 47% and down from all recent years except 1965 which was similar to this year both in total use-days and production.

The peak was 66,550 and in August. In 1968 the peak was 97,100 and in 1967 it was 112,710.

An early movement of widgeon and coots was the only real evidence of the fall migration. Substantial mallard, and redhead movement through the area failed to materialize beafore ice-up in October.

Both mallard and redhead summer populations were down by about 50% from the previous year. Mallard numbers were down by about a third and redheads by 85% during the fall period. Widgeon numbers were little changed from last year (1,399,500 in 1969; 1,662,535 in 1968).

Duck production was 4,956 this year - 36% less than 1968 (7,770) but similar to 1967 (5,130) and 1965 (5,525). Time of ice-out is the main factor in determining the refuge breeding population and ultimate production.

The most common nesters this year in order of number of ducklings produced, were lesser scaup, redheads, mallards, ruddy ducks, ring-necked ducks, shovelers, gadwall, and pintails. Scaup, redheads and mallards made up almost half of the total production.

In all, 16 different species nested on the refuge.

Duck nesting is later in this high mountain valley than most places. Pair counts are made during the last week of May and the second week of June. Brood counts are made during July. We saw a brood of 5 ducklings (unidentified) on Elk Creek on June 1. They were 16 days ahead of the next brood sighting - 4 Barrows Goldeneyes. At the end of June, mallards and pintails, newly, hatched, began popping out all over. Redheads and scaup came off mostly in July.

In August we came upon a lesser scaup swimming in Elk Creek, below Swan Lake, followed by a knot of 22 ducklings. She was alone and the birds were the same age and all stayed together as one brood. As we passed the brood they scattered into the sedge and dove while the hen desperately led us off. She was never joined by another hen.

#### Coots

If duck production was poor, coot production was excellent. Total production was 5,526, 22% above last year, 28% above the next highest year of the 60's. Brood and population counts became monotonous with coots.

Use-days for the year were 1,886,990. Coots peaked in September at 30,000, fell to 250 at the end of October and by November were gone.

#### White Pelican

Ten pelicans arrived on May 29. They increased to 400 and stayed in these numbers throughout the summer. They spent most of their time when they were not fishing in the lakes or on Lima Reservoir sitting on the dike on the west end of Lower Lake with about 200 California Gulls. Occassionally a bittern joined the outer edge of the gathering. They moved off in September ahead of the cold.

#### Greater Sandhill Crane

Valley and refuge residents have always welcomed the arrival of the first cranes. Traditionally, they herald the coming of spring and the end of the often too-long, too-cold winters. This year they were first observed on the refuge on March 30, one of the earliest arrival dates in years.

Migrating cranes come into the valley from the south over the continental divide. They appear in the lower valley first and gradually move onto the refuge as the snow recedes.

They begin their fall movement during the last of August. By the end of September all of the cranes have usually left the refuge but a few may remain in the lower valley. This year they were gone by September 30.

Refuge utilization patterns are seasonal and dependent on land use. The heaviest use in the spring is concentrated between Red Rock Creek and Widgeon Pond. During the summer and fall the birds are spread uniformally over the upland meadows with some concentrations along Tom and O'dell Creeks. However, response to a food source will concentrate cranes on specific areas of the refuge and disrupt their normal distribution patterns. This happens most frequently with grasshopper outbreaks in late summer.

Crane populations for the last several years have been:

Year	Adult	Young	Total
1959	•••	•	400
1960	293	7	300
1961	212	10	222
1962	184	2	186
1963	154	- 8	162
1964	278	12	290
1965	228	8	236
1966	250	14	264
1967	194	16	210
1968	202	28	230
1969	282	22	304
Average	2 28	13	255

A sandhill crane marked with a yellow neck band was observed west of the refuge. It was one of a mated pair that successfully raised two chicks. Banded cranes observed in past years were banded in New Mexico and Texas in the winter.

#### Shorebirds, Gulls, and Terns

Counting sora rails in the expansive marshes is difficult. Our best estimate is 2,000. American bitterns pose much the same problems but we came up with 50 for the year.

Other species such as black-crowned night herons (20), double-crested cormorants (10), eared grebes (600), western grebes (100), willets (200), western sandpipers (500), Wilson's phalaropes (3,000), California gulls (250), Forester's terms (50), common terms (300), black terms (250), and long-billed dowitchers (150) being more conspicuous were easier to count.

The great blue heronery on the north shore of Upper Lake attracted 20 pairs. They raised approximately 60 young.

Some early visitors were 30 greater yellowlegs arriving on July 1, 15 lesser yellowlegs arriving on July 7, and 1 solitary sandpiper arriving on July 2.

Two possible additions to the refuge bird list are: (1) 1 upland plover observed west of Tom Creek on June 16 and 17; (2) 1 Franklin's Gull observed on Widgeon Pond on June 17.

## B. Upland Game Birds

## Blue, Grouse, and Ruffed Grouse

Infrequent encounters with ruffed grouse on the lower slopes of the Centennials give evidence of their presence while attesting to their low numbers (50). They aren't hunted on the refuge and seldom disturbed on surrounding lands and are very tame.

Higher up the slopes blue grouse are more common but not numberous (30).

## Sage Grouse

Approximately 75 sage grouse were on the north side in the foothills of the Gravelys. Last year they numbered 60 and seldom get above 100.

Populations were high enough in the lower valley, off the refuge, to attract several parties of hunters. After the

hunting season groups of up to 50 birds were observed along the road in this area.

#### Gray Partidge

We knew of three coveys on the refuge. One covey was on the west end and two were along Elk Creek. The birds were observed along the roadsides in November when 5 inches of snow covered the uplands.

#### C. Big Game

#### Elk

The fall population of Rocky Mountain elk has been variously estimated at from 12 to 70 animals since 1964. The 1969 population was estimated to be 100. Frequent sightings during the fall indicated that this is a conservative estimate.

During the latter part of October, 45 elk were observed three miles south of the refuge. Later in November six inches of snow moved these animals to lower elevations where they remained off and on the refuge until the middle of December. Throughout November groups of up to 6 animals were evident by tracks or seen moving eastward on their annual fall migration across refuge lands. Seven head were regularly seen adjacent to the south boundary of the refuge and on December 2 ten elk were observed above the group of seven. Numerous tracks along the western boundary of the refuge show a substantial movement through the area to the west.

Apparently, although a limited number of elk may use the refuge for an extended period during the fall, most of the animals are found on the area for only a short period. They use the refuge sparingly during the breeding season and prior to migration. Movement over refuge lands may be leisurely taking up to a week - or it may be hurried and only a matter of a few hours, or minutes, depending on the weather.

Paradoxically, the number of elk taken on the refuge during the hunting season is relatively low (3 in 1968; 1 in 1969) but this is probably more a reflection of low hunting pressure and the transitory nature of the elk that cross refuge lands than an indication of actual numbers.

#### Mule Deer

Mule deer were often seen during the summer along the timbered edges on the south side of the refuge. An aerial flight in August revealed 21 deer on the uplands and along the edge of the marsh. In late summer and fall most of the deer moved high into the mountains and stayed until fall snows drove them down. During November, after the rut, they bunched up, sometimes in groups of up to 40, and migrated to the Gravelys on the north side of the refuge. As many as 25 head were seen wintering on the wind-blown slopes north of Culver Pond.

#### Moose

The moose population through the summer and fall was similar to populations of recent years. Twenty-six moose were counted on August 8; 15 bulls, 5, cows, and 6 calves. One of the cows had twins.

Most of the bulls moved out of the valley and into the mountains sometime in late summer or early fall. A few came back down in December but the snow was not deep and most stayed on the forested slopes. The cows stayed in the valley with their calves.

Three moose banded with red collars were seen on June 17 and one banded bull was seen on June 25. Moose banded in Idaho have been regular refuge visitors since 1966.

#### Pronghorn Antelope

The antelope count this year, made on August 8, was the lowest in years; 27 buck, 48 does, 64 kias. There has been a steady decline in the population since the highs of the early 60's of around 650 animals.

The Montana Fish and Game Department issued 2,000 antelope permits for this area in 1964 and 2,500 in 1965. This year they issued only 500. At the end of the hunting season a band of 150 antelope were on the west end of the refuge and several bands were seen off the refuge. If the winter is mild perhaps their numbers will begin to come back to their former levels.

#### Black Bear

Two bears were seen on the refuge during the summer. One troublesome bear chased two refuge campers into their pickup where they helplessly watched, as it tore their tent and bedrolls apart. Inasmuch as this was the bears only indiscretion this summer, no action was taken.

## D. Fur Animals, Predators, and Rodents

#### Muskrats

Muskrats fared well this year. New houses began to take

shape in spring and major construction went on throughout the summer. By fall they were set for the coming winter. This year's population was little different from last year's (2,000).

#### Beaver

Beaver were hard at it also. They constructed dams and lodges on Grayling, Elk, Humphrey, Shambow, O'dell, and Red Rock Creeks.

The results of the refuge moose study showed that there was more competition for moose browse from beaver than cattle. But with the moose and beaver populations at around 30 each there seems to be enough willows to go around.

#### Red Fox

Four fox dens were discovered on the refuge. One pair, west of Upper Lake at the mouth of Grayling Creek, raised two pups. A pair of sandhill cranes were also seen in this area and probably nested close by, but no chicks were seen.

A pair, not far from headquarters and close to the county road, raised 7 pups. Often on warm days they came out to sun themselves and provided refuge visitors with some interesting observations and pictures.

The others located their dens well out from human activity and were seen only from the air.

#### Coyotes

Coyotes increased in the valley and sightings were more frequent. Poisons and traps will take their toll this winter, but a few may survive to next summer.

## E. Hawks, Eagles, and Magpies

Red-tailed and Swainson's hawks were the most common summer residents followed by sparrow, sharp-shinned, and Cooper's hawks. Marsh hawks were uncommon until they came through on their fall migration in October.

A pair of perigrine falcons frequented the cliffs of Baldy Mountain and another pair hunted in the canyons and above the flats of Tom-Creek. Next summer, we hope to spend some time among the crags of the divide in search of their eyries.

An osprey nest was discovered above Hidden Lake next to the small pond called Goose Lake. The following observations were made on July 24:

"The nest, 3 feet across and  $2\frac{1}{2}$  feet thick, was about 100 feet above the ground atop a half-dead fir tree. It was made of coarse sticks but lined with a finer material.

An osprey stood on the edge of the nest, wings outstreatched, shading the lone nestling which by the end of July was already half grown. Its mate sat some distance away on a limb halfway up an old snag.

The adult bird began tearing off small chunks of fish (possibly a brook trout) about 10 inches long and feeding it to its young. The young bird fed almost 45 minutes taking bits of fish as fast as they could be offered. Following a short rest another fish about the same size was brought to the nest. The parent bird began feeding its young again when suddenly the still air was shattered by the shrill screams of its mate as it wheeled above the tops of the fir trees. The reason for its concern was soon apparent as two fishermen appeared and passed within 50 feet of the nesting tree. The pair followed the intruders and voiced their displeasure until the fishermen were well down the trail. The nestling seemed only concerned with satisfying its voaracious appetite."

## Eagles

Fifteen bald eagles were observed on the refuge this spring and 4 were seen in the fall. On an aerial flight of December 16 we counted 15 bald eagles in the Island Park area (35 miles east of the refuge).

During the fall 10 golden eagles were observed.

## Magpies

With the exception of a few crows and some Clark's nutcrackers to compete with, magpies pretty well had the place to themselves last winter. A dozen hung around headquarters scrounging what ever food they could find, which in a magpies diet might be anything that doesn't bite back.

#### F. Other Birds

Starlings nest in the valley but they are not common except during their fall migration. Most of the competition for nesting cavities is between mountain bluebirds and tree swallows, with tree swallows often winning out.

Several species not often seen in the valley were found to

be relatively common in some areas. Brewer's sparrows were often seen in the sage brush foothills on the north side of the refuge. In the conifers on the south side western tanagers, ruby-crowned kinglets, red-breasted nuthatches, Clark's nutcrackers, Hammond's flycatchers, and Townsend's solitaires were relatively common. Hermit thrushes, not on the bird list, were heard in the high conifers.

#### G. Fish

Culver and Widgeon Bonds yielded some catches of 3 and 4 pound brook trout. MacDonald Pond, unlike most years, produced few rainbows. The big ones were there and they could be seen rising in the evening though few people seemed able to catch them. The largest rainbow, that we know of, taken this year from MacDonald Pond weighed about 7 pounds.

Rip-rap along Red Rock Creek diverted the channel in some places and speeded the flow of water, enough, to wash clean several silt-covered gravel beds. This should be beneficial to spawning grayling whose numbers have been low for the past several years.

## H. Reptiles

Members of this group were represented by a few garter snakes seen crossing the road on some of the warmer summer days.

#### I. Disease

No disease was noted this year.

#### III REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

#### 1. New Construction

#### Water Measuring

Standard contracted weirs were set in Humphrey, Duff, Collins and Hackett Creeks. Excavations were completed for a measuring device on Lone Willow Creek. Four small impoundments were created when these measuring devices were put in.

#### Impoundments

A new pond was developed in 1-G on Duff Creek to provide extra watering facilities and a small pond for waterfowl use.

#### Signs

Informational signs were put up at Culver, Widgeon, and MacDonald Ponds.

#### 2. Rehabilitation

#### Irrigation Systems

Diversion controls were built on Collins, Duff, Hackett, and Grayling Greeks.

Ditching was completed on the west and south sides of 3-H to divert irrigation and seep waters.

Ten 24 inch turnout gates were set in Hanson's, Harlequin, and Shambow Irrigation Systems. One 30 inch slide gate was set in the Shambow Irrigation System. Six 24 inch turnout gates were installed in Collin's and Duff Creek Irrigation Systems.

About 1.5 miles of spreader ditches were developed to distribute water from Duff Creek.

Approximately 400 yards of road were built up and extended from Shambow Pond to Grayling Creek and a combination crossing measuring device was put across Grayling Creek. About 900 cubic yards of material were hauled.

#### Structures

The structure at the lower end of Lower Lake was completely rebuilt and the face of it was heavily riprapped. Approximately 1,500 cubic yards of material were hauled.

#### Bank Stabilization

Approximately 2,600 cubic yards of slide rock were used to riprap portions of Red Rock Creek that were cutting badly during high water. All portions of Red Rock Creek on the refuge that have been eroding have now been riprapped with the exception of those areas that are inaccessible.

#### Fences

Early in the season 16 man-weeks were expended on repairing fence damage caused by the deep snows and fence-cutting snowmobilers. No new fencing was undertaken.

#### Equipment

We were without a mechanic during the work period and experienced no little difficulty in keeping all of our equipment in operation. At one time we had four units sitting in front of the shop waiting for repairs.

The Kristi KT6 snow machine sat laid up for about a year and a half after 130 hours of operation. This summer it was reworked by the Kristi people and was supposedly ready for operation. However, we had to spend several days getting it ready for use. Only the bravest take it far from the shop, and not without a good pair of snowshoes and a mechanic.

Two new Alpine model twin track Ski-doos were purchased this fall. They have been receiving exclusive use and have been giving excellent service.

#### Buildings

Rewiring of the office and Quarters 90 was completed.

#### Radio System

Two additional handi-talkies and one hand set for use in one of the residences were added to the radio system. The radio system has been working out quite well and has added the extra margin of safety that we need in the winter.

#### Surplus

The following units have been put on surplus: 1963 Ford Station Wagon, 1963 Jeep  $\frac{1}{2}$  ton pickup, 1942 Universal Jeep.

#### Visitors

Other than a few tire repairs, refuge visitors and tourists required little assistance.

#### B. Plantings

#### 1. Aquatic and Marsh Plants

Approximately 100 bullrush (<u>Scirpus acutus</u>) rootstocks and 50 sedge (<u>Carex rostrata</u>) rhizomes were planted in August on the east shoreline of Sparrow Pond.

## 2. Trees and Shrubs

None.

#### 3. Upland Herbacious Plants

None

#### 4. Upland Crops

None.

#### C. Collections

## 1. Seeds and Propagules

None.

## 2. Specimens

Nine trumpeter swan cygnets were sent to the Denver Wildlife Research Center for Pesticide analysis. These were some of the cygnets that were found dead in the marsh after the cold spell in June and July.

## D. Control of Vegetation

None.

## E. Planned Burning

None.

## F. Fires

None.

#### IV RESOURCE MANAGEMENT

#### A. Grazing

Cattle, totalling 5,002 head, used 12,822 AUM's on 25,520 acres for a cash revenue of \$25,644. Five horses used 15 AUM's on 115 acres.

Grazing on the refuge has been steadily cut over the past several years to bring all units within their recommended carrying capacities. On all but two units this has been accomplished.

Year		AUM's
	٠.	
1965		15,930,75
1966		14,407.90
1967		13,510.38
1968		13,395.90
1969		12,822.04

As permittees reduce their herds or give up their permits we have gained extra AUM's. We have used these AUM's to reduce the pressure on the ranges without disrupting the remaining permittees operations.

On October 13, Mitch Boken, Range Consultant for the Soil Conservation Service, made an inspection trip of refuge range lands. These are his comments:

"Throughout the entire inspection there was not a field visited that range condition or vigor had not improved - nor was there a field that had been over utilized or abused.

It becomes quite evident the management has been very cognizant to good land management and is using livestock and range management practices to improve range condition and bring about a better habitat for wildlife management.

## B. Haying

Two haying permits were issued this year. A total of 224.5 tons of wildlhay was harvested on 460 acres for a cash revenue of \$1,571.50. Aftermath grazing on these two units was reduced by 2.5 AUM's for every ton of hay harvested.

#### C. Fur Harvest

The following were removed during the 1968-69 trapping season: 8 beaver, 34 muskrats, 55 red fox, 6 long-tailed weasels, 41 mink, 10 badger, 195 striped skunk, and 10 bobcat.

Beaver are controlled only where they become a nuisance. Bobcat are trapped whenever they become a problem at the winter swan feeding sites.

#### D. Timber Removal

None.

#### E. Commercial Fishing

None.

#### F. Other Uses

This was the last year for the Idlewild, Butana, and Daniel's Hunt Clubs. They have until June 30, 1970 to remove their personal belongings. The buildings will be disposed of by the government.

#### V FIELD INVESTIGATION AND APPLIED RESEARCH

#### A. Trumpeter Swan Nesting Study

Forty-seven swans nested on the refuge. There were 60 nests last year and 53 the year before.

Three new territories were established. Sixteen of last year's territories were abandoned this year. Forty-three pairs nested on the same nest sites as last year or close by.

Three nest sites were located on man-made impoundments. The nest on Shoveler Pond was built on an artificial nesting island.

Unit	Nest	S	Unit	Nests		
Lower Lake Rivermarsh Upper Lake	8 ( 16 ( 8 (	11)* 25)	Swan Lake Ponds	8 7	(11) (2)	

\*Number of nests on units in 1968.

Fourteen nests were found off the refuge. Elk and Conklin Lakes once again had a nest apiece. The rest of the nests were located on Red Rock River downstream from the refuge. Last year 15 nests were located off the refuge.

A pair was noted on the lower end of Elk Lake but they did not nest. They were also noted here in 1968 and did not nest. The habitat is marginal and the county road runs close by.

The cygnets on Conklin Lake were only a few days from hatching but the pair abandoned the nest when the rangerider moved into the cabin which is located 200 yds. from the nest site. This same thing happened in 1968.

#### B. Hatching Success Study

Twenty-two nests were checked to determine hatching success. There was a total of 95 eggs in these nests of which 47 hatched, for a hatching success of 49.5%. Applying this sample to the total number of nests gives a projected production of 100 cygnets.

#### C. Trumpeter Swan Mortality

Cygnet mortality was sudden. During the cold days of June and July 13 cygnets were found dead (13% of the total pro-

jected hatch).

Four cygnets were from one brood. Three were found on the nest, huddled together, and 1 was 20 feet away floating on the edge of a small opening in the marsh. Two cygnets were found floating in an opening in the marsh not fare from an active nest and were probably from the same brood. Although five eggs hatched in this nest no other cygnets were found. No doubt many more cygnets went undiscovered because of the dense emmergent vegetation.

The weather for this period was:

Da te	Precepitation	Max.	Min.
June 24	• 26 • 56	55 47	41
24 25 26 27 28 29	.17	47	
<b>27</b> 28	.04 .08	51 50	28 29
	•08	50 49	33 28 29 27 27
30 Ju <b>ly</b>	•02	60	27
1	Ţ.	69	32
2	T T	76 76	32 32
4		64	31
TOTAL AVERAGES	1.21	58.5	31.5
		1001	)-4/

Cygnet brood counts throughout the summer revealed a maximum of 7 cygnets on the refuge. Brood counts off the refuge showed a production of 11 cygnets. Observations this fall show a total production, to flight stage, of 20 cygnets for the entire valley.

## D. Trumpeter Swan Neck Banding Study

Very few collar neck-banded swans were seen this year. The most observed were 5 males (red bands) and 2 females (green bands) on January 23 in the Island Park area. One of the females was part of a pair which had 1 cygnet.

One banded male and 3 banded females were observed in a group of 330 swans on the refuge on March 11. On areas off the refuge, 174 swans were counted on this same day but no collar neck-bands were seen. One banded male and 3 banded females were seen on Upper Lake on May 21. During the moult in July only one swan (male) out of 75 on the Lima Reservoir was banded. During the summer 1 banded male and 2 banded females remained on Upper Lake. One red band was found at the winter feeding site in Culver Pond.

Several problems came up during the neck banding study (high band loss; same color bands used in Alaska on trumpeter swans and Utah on whistling swans; poor materials and color lasting qualities of the bands). Although some objectives of the study were accomplished others were not. Data gathered over the past 4 years will be compiled shortly and the final report will be submitted.

#### E. Trumpeter Swan Banding

Fifty nonbreeding trumpeter swans were leg-banded this year. Most of the birds were caught on Lima Reservoir when they were in the moult. We started at the upper end of the reservoir in an air-thrust boat and caught the birds as we moved down the lake and came to them. They are not difficult to catch on the water. They don't dive too deep or for too long and often don't dive at all.

We handled 53 birds, banded 47, and o were already banded. After our efforts of that day we estimated that about 75% of the 75 birds on the reservoir were banded. Thirteen non-breeders were caught on Upper Lake of which 10 were already banded.

Of the 16 birds that were already leg-banded, 5 had been originally collar banded also. Three had lost their collar bands and 2 still retained them.

#### F. Band Returns

A mallard banded on the refuge in 1965 was shot in California on January 2, 1969. A mallard banded on the refuge in 1965 was caught on the refuge in a steel trap in February of 1969.

## G. Moose Management Study

The results of Robert Dorn's refuge moose management study show:

"Food habits primarily determined the use of vegetation types. Browse accounted for 98.3% of all forage used by moose in summer; 4 species of willow made up 86.2% of the total browse used. In winter browse accounted for 99.8% of the forage used by moose; species of willow made up 75.10% of the total browse used.

Forage competition between moose and cattle was not significant under the conditions prevailing during this study.

Cattle preferred a species of willow little taken by moose. Most of the browse used by cattle was less than 5 feet above the ground level. Most of this was covered with snow in winter so was unavailable to moose. Forage competition caused by trampling and rubbing could become significant with heavier stocking. Stocking rates during the study were about one animal to 5 acres."

#### Mr. Dorn's management recommendations are:

"Stocking rates of cattle should take into account the availability of palatable forbs, grasses, and grass-like plants and of Salix wolfii which acts as a buffer between moose and cattle. The possibility of trampling damage should also be considered. Fences should be constructed to minimize hazards to moose. Beaver should be harvested regularly to minimize competition with moose.

The hunting season should start about September 20 because of the heard composition and size of the population at that time. Cows followed by calves should be protected and the annual quota should be raised from five to eight."

## H. Aquatic Plant Survey

In 1966 an aquatic plant survey employing methods and proceedures according to Clark Websters Habitat Inventory Technique was initiated. Eighteen different species of aquatic plants have been recorded during the inventory. Production has varied from 7.5 tons per acre in Upper Lake to 62 tons per acre in Culver Pond.

This year, Lower Lake, Revermarsh, MacDonald Pond, and Swan Lake were surveyed.

Results of the Lower Lake survey show a production of 16 tons of vegetation per acre. Lower Lake was surveyed in 1967 and showed a production of 15.5 tons per acre.

Although both surveys agree closely in total production they very markedly in species composition. Coontail (Ceratophyllum demersum) made up 17% of the vegetation in 1969 but was not recorded in 1967. Waterweed (Elodea canadensis), preferred swan food, increased from 44.1% of the total vegetation sampled in 1967 to 53.8% in 1969; this is a projected increase of 2,749 tons for all of Lower Lake.

Some other comparisons are:

Species	Percent of	Vegetation Sampled
Bill the Franch and the Strade Strates	1967	1969
Potamogeton pectinatus	2.9	0.9
Potamogeton Richardsonii	14.6	15.0
Potamogeton zosteriformis	16.6	4.5
Potamogeton praelongus	6.2	3.4
Myriophyllum exalbescens	4.4	1.3
Lemna trisulca	4.7	0.7

Whether these differences are do to actual changes that have occurred or to a weakness inherent in the inventory procedure is not known. We will want to accumulate several years data, though before we make any conclusions regarding the plant community.

Analysis of this year's data showed that 62 samples were required for a mean variation of each sample within 25% of the 95% confidence level. The 1967 data required only 31 samples to fall within 25% of the 95% confidence level. This points to the wide variation of plant density within the small—sized sample plots. Visually, one can also see a good deal of interspersion within the sample plots among the various species.

#### VI PUBLIC RELATIONS

#### A. Recreational Use

January, to April were for snowmobilers. They had good snow and good weather. About 150 traveled the snowmobile trail passing through the refuge.

May, the roads opened. Visitors, mostly wildlife observers, increased to 367 for the month.

The fishing season opened June 16, attracting 280 fishermen to the refuge ponds. Wildlife observers increased in June to 1,000 and picnickers and campers first appeared.

Visitors increased to 1,856 in July and 3,175 in August. September saw 690; October, 350; November, 100; December, 7 refuge visitors.

The following table summarizes visitor use for the last two years:

Activity	Visits-1968	Visits→1969
Hunting	230	355
Fishing	916	1,010
Wildlife Observation	447	5,581
Other	837	1,089
TOTALS	2,430	8,035

#### B. Refuge Visitors

Some of the visitors to the refuge this year were:

Date	Name	Organization	Purpose
4/23 5/6 5/6 5/20 5/21 5/21 6/16 6/26 7/2 7/18 7/23 7/28 7/31 8/1 8/7 8/12 8/22 8/22 8/22 8/22 8/22	Dave Cain  O.B. Bacus Johnny Greenwald Dean C. Rodman Louie Day Jr. Bill Maguire Dave Paullin Cruickshank, Mr. & Mrs. Sam Short Norman E. Rees Van Wormer, Mr. & Mrs. Jacobs, Mr. & Mrs. Glenn Charles W. Gibbons Bob McVein Redfern, Mr. & Mrs. Don Bill Downs Bob Salisbury Howard Gray Wegge, Mr. & Mrs. Mekuria Tafesse Jishua Zuhe Kwaku K. Ksram, Africa Charley. Kabenjr George Kirutte	Weather Bureau Beaverhead N.F. Beaverhead N.F. Benton Lake N.W.R. S.C.S. Simplot Co. Camas N.W. Refuge Photographer B'L'M. U.S.D.A. Writer Sacromento N.W.R. C.M.R.N.W.Refuge Regional Office National Elk Ref. Weather Bureau Weather Bureau Photographer Norway State Game Re Exchange Student Exchange Student Exchange Student Exchange Student Exchange Student	Official Official Official Official Official Official Visiting Photography Official Photography Visiting Official Visiting Official Visiting Official Visiting Official Show Film Visiting Tour Tour Tour Tour
8/22 8/27	George Kirutte Jim Langford	Exchange Student Regional Office	Tour Official
9/8	Muncie, Mr. & Mrs. Milt	F.&G. Nebr.	Visiting
9/9	Anderson, Mr. & Mrs John Peter Viking	Natil Audubon Soc. KID-TV	Birding Visiting
11/3	Wally Mueller Val R. Gibbs	U.S.F.S. U.S.F.S.	Visiting Visiting

## C. Refuge Participation

March 17-20th, Owen attended the annual State Fish & Game meeting in Helena, Montana.

March 17-21st, Heavy Equipment Mechanic, Ray Hotchkiss attended and completed the Heavy Equipment Maintenance & Service Training offered at the Kicking Horse Job Corps Camp, Ronan, Montana.

May 13, 90 Rotarians enjoyed a conservation talk about the Red Rock Lakes NW Refuge presented by Owen Vivion in Jackson, Wyoming.

May 23, Assistant Refuge Manager Ron Papike attended his first

Range Seminar, sponsored by the B.L.M. in Dillon, Montana.

June 14, Owen and Ron participated in the annual Red Rock Lakes Cattleman's Association meeting, held in Dell, Montana.

August 5, a rough draft of the proposed Continental Divide Trail in Montana was developed by representatives of the BSF&W, the USFS, and the USBLM during a meeting held in West Yellowstone. Mr. Vivion represented the BSF&W.

August 20, Owen and Ron made a trip to Hebgen Lake to survey Forest Service land for possible wildlife development.

August 22, Owen conducted a talk and tour of the refuge to a group of African exchange students.

September 13, Red Rock Lakes donated Ron Papike, and 112 man hours to the Tulare Basin botulism problem in California.

October 7, Owen participated in the National Trumpeter Swan Society meeting held in Minnesota.

November 13th, Ron presented Howard Gray's new film "Time and The Trumpeter Swan" to the Lima High School, Elementary and P.T.A. groups. This film was of special interest to these groups as "Time and The Trumpeter Swan" was filmed in their own backyard; Red Rock Lakes National Wildlife Refuge.

#### D. Hunting

#### Waterfowl

The opening weekend of the waterfowl hunting season brought 100 hunters to the refuge. Success was 2.1 ducks per hunter. On Sunday of the opening weekend, temperatures dropped and Lower Lake began freezing. Most hunters had difficulty getting out and left early.

Temperatures warmed and the lake opened two weeks later but few hunters were on hand to take advantage of the hunting.

Widgeon were most often taken followed by lesser scaup, gadwall, mallard and blue-winged teal. Crippling loss was about 16%.

#### Antelope

Only 500 antelope permits were issued by the Montana Fish and Game Department for the Centennial Valley; the opener coincided with the elk, deer, and moose opener; antelope numbers were low, consequently antelope hunters were down from past years.

#### Deer and Elk

One elk and 3 deer were taken on the refuge. The fall was mild with little snow during the hunting season to move the elk and deer out of the mountains and to the valley where most of the hunting pressure was concentrated.

#### Moose

Five permits were issued for the refuge moose hunting area. One bull, 2 cows, and 1 calf were taken by four of the permit holders. One permit holder didn't hunt.

#### E. Violations

A party of hunters tried illegally to take a moose on the refuge but were unsuccessful. We heard the shooting and gave chase but didn't catch up with them. These people, out of staters, were apprehended by state wardens a few days later with two illegal deer.

Another incident involved one of the moose permit holders. A party of 3 men and 2 women showed up to go moose hunting. One of the women, who was on crutches, had a moose permit and of course was the only one who could legally shoot a moose. It seems, though that her husband and his friends intended to do the shooting for her so that they could be on their way that same day. Our warnings and constant surveillance disrupted their plans, however, and they went home four days later empty-handed. They came back two weeks later and she got her moose. It was the calf.

#### F. SAFETY

SAFETY meetings are held monthly with regular staff personnel rotating responsibility . SAFETY material, literature, and movies and shown.

There were no lost time accidents this year. The station now has 1,229 lost time accident free work days, up to December 31.

#### VII OTHER ITEMS

#### A. Items of Interest

There was a complete turnover of refuge personnel, beginning with the exchange of postions between John Annear and Ron Papike. John went to Deer Flat Refuge in southwestern Idaho and Ron took over for John at Red Rock Lakes.

Ray and Katie Hotchkiss went next. After nine years in the valley they finally decided that they had enough of the winters and transferred to Ruby Lakes Refuge, Nevada. Ray is a skilled mechanic and we missed him immediately, however, Dan Sullivan filled in for Ray and has done a fine job keeping things running. Dan decided to stay on through the winter when it looked like we weren't going to get another mechanic. His snow sense and valley experience have been invaluable to us.

We also lost our clerk (Katie) when the Hotchkisses moved. Ron's wife, Becky reluctantly accepted the position. Although she would rather be fishing for brook trout on Grayling Creek than sitting in front of a typewriter. She has really been a help.

And to make a clean sweep, Gene Stroops, Benton Lake, exchanged positions with Owen Vivion and took over as manager in December.

Allan and Helen Cruickshank spent a month on the refuge filming wildlife and wildflowers. They are making a film for the Audubon Society on the natural history of Montana.

The premiere of Howard Gray's film "Time and the Trumpeter Swan" was held at Lakeview on August 12. This is an excellent, probably the best, film on the trumpeter swan and Red Rock Lakes Refuge. It documents the role of the refuge in saving the swans from extirpation and explains our present management to assure their continued well-being.

#### B. Acknowledgements

Gene Stroops ...... Editing
Ron Papike ..... Preparation
Becky Papike ..... Typing

## SIGNATURE PAGE

(Sign	ature)	·	1
E. D.	Stroop	5	
	Refuge	Manager	

Submitted by:

Approved, Regional Office:

Date:

(Signature)

Refuge Supervisor

(Title)

FILE

3-175° Form 1-1 (Rev. March 1953)

## WATERFOWL

(1) : Species :	12/29-1/4:	1/5-11:	Weeks 1/12-18: 3:	1/19-25:		2/2-8:	2/9-15:			10
Swans: Whistling										1 1 1
Trumpeter	300	335	325	320	330	305	320	320	325	330
Geese: Total Sma	300	335	325	320	330	305	320	120	325	330
Canada Cackling Brant	30	30	30	30						
White-fronted Snow										
Blue MARAS Total Geese	30	30	30	30						
ucks:										
Mallard	100	600	800	800	700	800	900	1,000	1,000	1,000
Black Gadwall	1(0)	10	1(4)	(8)						
Baldpate	150	500	200	300	200	200	250	250	300	3(0)0
Pintail	1(0)	10	10						5	5
Green-winged teal	5	5	5							
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood Redhead										
Ring-necked										-
Canvasback										
Scaup	50	20	5					10		
Goldeneye	1,000	800	600	700	600	500	600	700	000	900
Bufflehead	20	3.0		25	10	130	(1)	3.0	[0]	20
Ruddy										
Other	2 62 6	2 442	2 600	3 835	1,510	1,620	1,770	1,970	2,115	2,225
Totals	1,645	1,665	1,655	1,835	79.200	79050	73110	79710	ويناري	63663

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3 -1750a

Cont R-1

### (Rev. March 1953) WATERFOWL (Continuation Sheet)

Spiller. MONTHS OF January 20 April , 1969 REFUCE Rock lakes (2) (3) (7) Total Froductions Weeks of reporting period Estimated : Production : 3/9-15: 3/16-22: 3/22-29: 3/30-1/9 h/6-12: h/13-19:1/20-26: waterfowl :Broods:Estimated : 11 : 12 : 13 : 14 : 15 : 16 : 17 18 Species days use : seen : total MERCH Swans: M. T. Whistling 260 330 265 30,820 320 Trumpeter 260 36,820 320 268 330 300 295 285 Geese: Total Swan 5,810 50 100 150 200 200 Canada Cackling Brant White-fronted Snow Blue Other Total Consu 10 50 Loo 150 6.00 5,810 200 Ducks: 1,400 136,850 1,700 2,750 1,000 1,200 1,300 2,200 Mallard Black e (0) 80 (0 a) [00] [ P 4 ] الزخار Gadwall 100 100 450 450 500 600 700 10.50 Baldpate 1,000 13,025 AV(V) 600 Pintail 10 170 200 Green-winged teal 3,230 Blue-winged teal 30 Cinnamon teal 20 30 100 **h20** [10] Shoveler 1,750 Wood (0) (5) 2(0) Redhead 1 1 1 0,339 Ring-necked 50 14 150 150 10 3,255 25 Canvasback 1 ( + ) 17.4 2,615 Scaup 50 100 500 0.050 10 977150 Goldeneye 950 1,000 500 ROO 900 2 H 9 900 Bufflehead 250 400 A.) [0] 100 50 100 Ruddy Othernergansers 20 [مرا 125,115 5,730 2,635 2,800 3,140 h-100 7,770 2,260 Totals 3,500 33,740 100 200 1,000 20 Coot: (over)

		(6) (7) Peak Number: Total Production	SUMM	IARY
Swan	as 36,820 :	390	Principal feeding areas	actionald Fond, Culver Fond
Gees	se 5,810	200		
Duck	18,115	7,770	Principal nesting areas	
Coot	te 33,740	3,500		
	weler od iheed		Reported by John % Annear	, Biologist
CIN	mamon teal			
	TNS			
	Species:	IRUCTIONS (See Secs. 7531 through In addition to the birds listed reporting period should be adde	on form, other species occur d in appropriate spaces. Spe	ring on refuge during the
(1)	Species:	In addition to the birds listed	on form, other species occur d in appropriate spaces. Spe	ring on refuge during the
(1)	Species:	In addition to the birds listed reporting period should be adde	on form, other species occur d in appropriate spaces. Spe ational significance.	ring on refuge during the cial attention should be given
(1)	Species: Weeks of	In addition to the birds listed reporting period should be adde to those species of local and n	on form, other species occur d in appropriate spaces. Spe ational significance.	ring on refuge during the cial attention should be given
(1)	Species:  Weeks of Reporting Period:  Estimated Waterfowl	In addition to the birds listed reporting period should be adde to those species of local and n  Estimated average refuge popula	on form, other species occur d in appropriate spaces. Spe ational significance. tions. mber of days present for each ced based on observations and hould be made on two or more	ring on refuge during the cial attention should be given species.  actual counts on representative areas aggregating 10% of the
(1) (2) (3) (4)	Species:  Weeks of Reporting Period:  Estimated Waterfowl Days Use:  Production:	In addition to the birds listed reporting period should be adde to those species of local and not be stimated average refuge popular average weekly populations x number of young productions areas. Brood counts s	on form, other species occur d in appropriate spaces. Spe ational significance. tions.  tions.  mber of days present for each ced based on observations and hould be made on two or more ving no basis in fact should	ring on refuge during the cial attention should be given species.  actual counts on representative areas aggregating 10% of the
(1) (2) (3) (4)	Species:  Weeks of Reporting Period:  Estimated Waterfowl Days Use:  Production:	In addition to the birds listed reporting period should be adde to those species of local and not be stimated average refuge populations x numbers are stimated number of young productions are as a Brood counts a breeding areas. Brood counts a breeding habitat. Estimates ha	on form, other species occur d in appropriate spaces. Spe ational significance.  tions.  tions.  mber of days present for each ced based on observations and hould be made on two or more ving no basis in fact should r (3).	ring on refuge during the cial attention should be given species.  actual counts on representative areas aggregating 10% of the be omitted.

3-175° Form 1 1 (Rev. March 1953)

## WATERFOWL

					(2)					
			Weeks	of r	e port	ingn	eriod			
(1)	127-5/3:	5/1-10	3/11-17	5/18-24 :	5/25-11:	6/2-7	6/8-11:	6मद्भा	6/22-23	5/39-7
Species :	1 :	2 :	The same of the sa		_	6 :	7 :			10
vans:		14-14-14							1	
Whistling										
Trumpeter	230	220	220	220	220	220	220	300	275	27
ese: Total Swan T	230	220	220	220	220	220	220	300	215	21
Canada	200	200	200	200	200	200	220	5/10	5/10	514
Cackling										ART LAN
Brant										
White-fronted						1900				
Snow										
Blue								A Maria Cara		
Thiel Course	SU)	200	200	200	- (0)		4.0	240	\$10	24
cks:										24
Mallard	2,000	2,000	500	100	100	700	500	600	610	65
Black								100	100	
Gadwall	300	300	300	300	300	300	350	700	1,50	lis.
Baldpate	700	500	350	200	500	200	250	275	275	27
Pintail	1,000	500	400	400	100	100	500	500	550	57
Green-winged teal	50	200	160	160	160	160	160	180	200	25
Blue-winged teal		100	160	150	150	150	200	200	200	25
Cinnamon teal	30	100	100	170	170	170	200	250	275	27
Shoveler	100	150	200	260	260	260	260	280	290	30
Wood	775					-	O.do		2 220	
Redhead	650	700	7.50	750	750	750	850	1,000	1,200	1,20
Ring-necked	150	200	300	300	300	300	350	400	150	50
Canvasback	220	200	160	160	160	160	800	325	275	20
Scaup	800	1,000	1,400	1,400	1,400	1,400	1,600	2,000	2,000	2,00
Goldeneye, Barrow	800	500	100	50	50	50	50	60	60	8
Bufflehead	250	200	50	50 600	50 600	50 600	600	620	50	650
Ruddy	20	100	350	10	10	10	10	10	10	95
Other	- V. Y.		50000	5,360	5,30	5,360	6,150	7,050	7,515	7,83
Total Ducks	7,300	6.71.0	2,260	20,500	7777	75,750	0,100	1,000	LUSTED.	1,03
ot:	3,500	3,500	3,000	3,500	3,500	3,500	3,500	4,000	4,500	5,00

3 -1750a

Cont R-1 (Rev. March 1953)

### WATERFOWL (Continuation Sheet)

(1) LOCAL LLOGGER	100	Action Sept. 4		(2					(3)		1969
(7) Total Freduction		Week	s of	repoi		per	iod		Estimated	: Produ	
(1) Species :	7/6-12	7/13-19	7/20-26	7/27-8/2	8/3-9	8/10716	8/17-23	8/218-30	waterfowl days use	:Broods	:Estimate : total
wans:		nonproof %	N	normon n	irina / 31	1	1				
Whistling			1000	included w	Style (VS)						1
Trumpeter	250	250	250	250	250	250	250	250	30,800	15	15
ese: Total Swan	250	250	250	250	250	250	250	250	30,800	15	15
Canada	250	250	200	200	340	100	250	200	25,420	11	1.8
Cackling								-	aray contação c	in manager	n + 2 + 3 - 2 - 2
Brant			or the facility		Barrier Street	1187 17 17					
White-fronted						2 2 2 2 2					-
Snow			-				-				4
Blue											
Ather Total Geose	(A) < (A)	250	500	200	150	40	150	200	25,1-80		
icks: Mallard											
Black	800_	1,000	2,000	5,000	8,000	8,000	15,000	15,000	1/10, 230	21	555
Gadwall			revel no man	101147 BB 9	GRATING	DESCRIPTION OF THE PERSON OF T	a dia single de s	2020070	BOTO TO PERSON A	HELE BECOMES	STABIL 7
Baldpate	_500	1,000	1,000	1,000	3,000	6, 200	17,500	7,200	21,350	9	235
Pintail	1.000	1 200	1,500	1,000	2,000	5,000	19,000	17,500 8,500	333,025	- 8	200
Green-winged teal	250	the last desirable to the last of the last		1,500		Maria America de la Companya de la C	THE RESERVE AND PERSONS ASSESSED.	0,500	331975	-	223
Blue-winged teal		300	350	300	200	200	200	200	27,160	1	
Cinnamon teal	250	500	500	-1,000	1,000	1,500	1,500	1,500	12.180	2	98
Shoveler	350	500	500	500	500	500	500	500	13,610	10	21.8
Wood	-350	1-300-	1 300	500	-	300			43,0110		7110
Redhead	7 200	9 500	2 500	2 500	3.000	3 500	2 500	h 500	222,600	37	758
Ring-necked	500	500	5.00	500	500	500	500	500	50-750	17	400
Canvasback	300	350	350	1.00	1,00	150	1,50	150	36.1.70	=	130
Scaup	2 500	2.000	3,000	3.000	3.000	3.000	3,000	3,000	269 500		1 12
Goldeneye Barrow's	100	100	700	700	7.00	700	100	300	18 200		20
Bufflehead	100	100	100	100	100	300	100	300	13 620		or
Ruddy	1.000	1.000	1.000	1.000	1_000_	1,000-	1.000	1.000	89.320	25	526
Other	20	20	10	112			a production		910	0	50
Total Ducks	9,220	12,570	13,910	17,900	27,300	42,050	66,550	60,050	2, 196, 360	197	4,956
oot:	7,000	8,500	8,500	8,500	8,500	8,500	8,500	8,500	728,000	307	5,526

	Total Days Use	(6) Peak Number:	(7) Total Production	SUMMARY		32A	2,33
Swan	30.800	300	16	Principal feeding areas	er, Lawer Le	co-and-Bân	•
Gees	25,480	250	48	Narsh	1		100
Duck	8 2.194.360	66.550	4,956	Principal nesting areas	water in car	x stands	2,38
Coot	728.000	8.500	5.526	and adjacent uplands chose to	- narsh-odgo.		100
			204	Reported by Rangld V. Popil			
					13,100	1 6	336
D.J. see	TNC	MOJICATONE (Can	C 75'23 Ab	h 70). Wildlide Defuges Field We			77
	INC						
(1)	Species:	In addition t	to the birds listed	h,7534, Wildlife Refuges Field Ma d on form, other species occurring ed in appropriate spaces. Specia	ng on refuge o		
(1)	Species: Weeks of	In addition treporting per to those spec	to the birds listed riod should be adde cies of local and n	d on form, other species occurring ed in appropriate spaces. Specia national significance.	ng on refuge o		
(1)	Species: Weeks of Reporting Period:	In addition to reporting per to those spector to those spectors.	to the birds listed riod should be adde	d on form, other species occurring ed in appropriate spaces. Specia national significance.	ng on refuge o		
(1)	Species: Weeks of	In addition to reporting per to those specific Estimated ave	to the birds listed riod should be adde cies of local and n	d on form, other species occurring ed in appropriate spaces. Specia national significance.	ng on refuge of		
(1)	Species:  Weeks of Reporting Period:  Estimated Waterfowl	In addition to reporting per to those specific Estimated ave.  Average week!  Estimated numbreeding area	to the birds listed riod should be addeded to sof local and receives of local and receives refuge populations x number of young products. Brood counts a	d on form, other species occurring d in appropriate spaces. Species national significance.	ecies.	should be	given
(1) (2) (3)	Species:  Weeks of Reporting Period:  Estimated Waterfowl Days Use:	In addition to reporting per to those specific to those specific average week!  Average week!  Estimated numbreeding area breeding habi	to the birds listed riod should be addeded to sof local and receives of local and receives refuge populations x number of young products. Brood counts a	d on form, other species occurring the din appropriate spaces. Species national significance.  ations.  umber of days present for each spaced based on observations and acceptable because on two or more are aving no basis in fact should be	ecies.	should be	given
(1) (2) (3) (4)	Weeks of Reporting Period: Estimated Waterfowl Days Use: Production:	In addition to reporting per to those specific to those specific average week!  Average week!  Estimated numbreeding area breeding habit.  A summary of	to the birds listed riod should be added cies of local and recorded under the birds listed as a second counts of the counts of t	d on form, other species occurring the din appropriate spaces. Species national significance.  ations.  umber of days present for each spaced based on observations and acceptable because on two or more are aving no basis in fact should be	ecies.  etual counts of as aggregating omitted.	on represe	given

3-1750 Form 1 1 (Rev. March 1953)

## WATERFOWL

:					(2)			13		
Species :	8/11-9/6:	9/7-13 :		of r 9/21-27:		10/5-11	eriod :10/12-18 : 7		: 10/26-11/1	10/2=
Swans: Whistling	1-1-1-1	5			1			250	1,500	1,500
Trumpeter	175	175	175	150	150	150	10	100	50	150
eese: Total Swan	1/2	175	175	150	150	150	1.0	350	1,550	1,650
Canada	150	150	150	150	150	100	10 0	400	400	500
Cackling	200	2/0	-200	- 270				400		
Brant								V III		
White-fronted										
Snow	1000									
Blue										
Ather Total Geese	150	150	(5)	160	150	100	100	700	1400	<b>100</b>
ucks:							A			
Mallard	10,000	5,500	5,000	5,000	2,000	3,500	3,500	2,000	1,000	1,000
Black		(* - 3 <u>-1</u> 1	dee		Les	200	200			
Gadwall	3,500	250	500	500	150	500	500	600	2 000	3 00
Baldpate	20,000	20,000	30,000	40,000	10,000	20,000	6000	100	3,000	3,000
Pintail	6,000	2,500	1,500	1,500	1,500	1,000	250	200	250	25
Green-winged teal	500	500	500	500	500	500	290	200	250	-
Blue-winged teal Cinnamon teal	1,000	700	500	500	500	70	-			
Shoveler	700	200	600	600	600	500				
Wood	500	300	0.00	000	000	200			-	
Redhead	2,500	1,700	1,000	1,000	1,000	1,000	800	200	500	50
Ring-necked	700	700	250	250	250	300		100	100	10
Canvasback	600	600	500	500	300	150	150			
Scaup Lesser	1,000	200	2,000	2,000	3,500	1,500		197 7		
Goldeneye	50	10	50	50	50	50	100	250	250	65
Bufflehead	100	800	200	100	100		50	50	50	7
Ruddy	1,500	2,000	1,000	1,000						
RINER Common Merg.			25	25	25	3 -9 5 50 -			Marine Marine	
Total Ducks	19,250	35,760	13.5万万	11.200	50,772	3/,500	9,950	7,00	5,150	27.15
oot:	19,500	25,000	30,000	30,000	30,000	25,000	1,000	250		

3 -1750a

Cont. R-1 (Rev. March 1953)

## WATERFOWL (Continuation Sheet)

	1/9-15 :	Weeks	o f 11/23-29:	(2 repor	ting	peri	o d				Estimate
Species: Swans: Whistling Trumpeter Geese: Canada Cackling Brant	500 200 700 350	200 200 400	13 : 175 175 250	14 : 01.qeq mu 150 150 160	15 : 150 150	150	17 150 150	18	days use  25,250  17,130  13,680  23,150	seen s	total
White-fronted Snow Blue Divis Ducks: Mallard	350	2,000	250	1,000	1,000	500	250		332,750		
Black Gadwall Baldpate Pintail Green-winged teal Blue-winged teal	3.000 U(I)	100	3,000	100	1,500	500	500	Held Nan courring	16,200 1,389,500 102,900 32,900 25,900		
Cinnamon teal Shoveler Wood Redhead Ring-necked Canvasback	800 50	100	50 50	50 50	25	25			21,700 74,200 24,175 19,600		
Goldeneye Bufflehead Ruddy	800 50	800	500	900	500	320	340		25 0 2 25 0 2 25 0 20		
Total Ducks	6,250	6,100	5,750	( ov		3,500	1-200	2010830	1,125,250		V.

	(5) Total Days Use	(6) (7) Peak Number: Total Production	SUMMARY
Swan	43,680	1,650	Principal feeding areas Spper, Lower Lake and River Marsh
Geese	23,450	500	
Duck	2,222,920	53,525	Principal nesting areas Over water in carex stands
Coot	1,125,250	30,000 :	adjacent uplands close to marsh edge.
	memon teal yealor		Reported by Ronald V. Papike
GSA	INS	STRUCTIONS (See Secs. 7531 through	7534, Wildlife Refuges Field Manual)
(1)	Species:		
B) 4	Species: Weeks of Reporting Period:	reporting period should be adde	ed in appropriate spaces. Special attention should be given national significance.
(2)	Weeks of	reporting period should be adde to those species of local and n Estimated average refuge popula	ed in appropriate spaces. Special attention should be given national significance.
(2)	Weeks of Reporting Period: Estimated Waterfowl	reporting period should be adde to those species of local and n  Estimated average refuge popula  Average weekly populations x nu  Estimated number of young productions areas. Brood counts s	ed in appropriate spaces. Special attention should be given national significance.
2) 3) 4)	Weeks of Reporting Period: Estimated Waterfowl Days Use:	reporting period should be adde to those species of local and n  Estimated average refuge popula  Average weekly populations x nu  Estimated number of young productions areas. Brood counts s	ations.  The special attention should be given national significance.  The special attention should be given national significance.
(2)	Weeks of Reporting Period: Estimated Waterfowl Days Use: Production:	reporting period should be adde to those species of local and not be added to those species of local and not be	ations.  The special attention should be given national significance.  The special attention should be given national significance.

Fire 3-1751 Form NR-1. (Nov. 1945)

MIGRATO. BIRDS

(other than waterfowl)

Months of to April 1959 bas saved III Refuge Red Rock Lakes

Species Common Name	First	Seen	Peak Nu	mbers	Last	Seen		roduction		
	Number	Date	Number	Date	Number	Date	Number 7	Cotal #	Total	Total Estimate Number
I. Water and Marsh Birds:  Western Crobe White Pelican Great Blue Heren Sandhill Crane	30 10 10 3	4/23 4/23 4/29 4/11 3/30	200 15 50 100 150	1/30 1/30 1/30 1/30 1/30	Still F	recent	8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		DO DOMESTICAL	200 15 50 100 150
Shorebirds, Gulls and Terns: Killdeer Common Shipe	3	<b>W</b>	300 50 30	1/30 1/30 1/30	COURTRANT Squol a Squol		other spaces.	eaU ebro mel sing	ecies:	300
Long Billed Curles Willet Avocet California Cull Ring Billed Cull	3	7/10 1/18 1/18	10 25 40 20	F/30 F/30	II. Shore II. Loves II. Shore II. Virede IV. VI the Inc. the	Drocer eg	List refu		rst Seen: ak Mümber	
	.berreon	веляол с	eds gain	pecies du	for the s	brooms	guler farl	edi	st Seen:	sd (4)

	(1)	(2)	(3)	ATA	(4)		5)	(6)
II.	Doves and Pigeons: Mourning dove White-winged dove	1 4/19	(1) 25	L/30	Still Present	(2)	RefugeEx	25
	Predaceous Birds:	Number To	Last See	ers Date	n Peak Numl	First See	on Name	raio D
14.	Golden eagle Duck hawk	Present all Per	104 10	1/28			d Marsh Hirds:	Water as
	Horned owl Magpie Raven	Resident Resident OBSCRUED	OCAASIONALL	y THROU	attout PERIOD		edero edero edero edero	15 200 25
	Crow Sharp Shinned Resk Red Tailed Heek Swainson's Hank	2 3/10 1 3/19 2 3/20 1 4/9	250 5 5 6	1/19 1/30 1/30			anset I	¥00
	Rough Legged Hawk Bald Eagle Marsh Hawk Sparrew Hawk	2 h/lk Observed all pe	rled 15 10 25	1/30 1/30				18 10 30
	1				Report	ed by John To	Amone, Biolog	dat

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconiiformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751 Form NR-1A (Nov. 1945)

### MIGRATURY BIRDS (other than waterfowl)

Refuge Red Rock Lakes

Months of to August 19269

(1) Species	(2) First		Peak N	3) umbers		(4) Seen	I	(5) roduction	n	(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:  Fared Grebe Western Grebe Pied-billed Grebe White Pelican Double-created Cornerant	30 6 2 100 1	5-15 6-1 6-1 5-10 7-15	600 100 30 100	8-20 8-1 8-1 5-3 7-15	END OF	PERIOD PERIOD PERIOD PERIOD			100 20 20	600 100 50 400
Great Blue Heron Black-crowned Wight Heron American Bittern Sandhill Crane Sore Rail	1 2 3 10 6	5-8 6-1 5-15 5-9 6-1	100 20 50 300 2,000	8-15 8-10 8 8-30 8-30	END OF END OF	PERIOD PERIOD PERIOD		20	60 10 22	100 20 50 300 2,000
to the birds listed on	ifiha IE		S O.U. Check "tern"	OLTOURTE A edt al Llugses'	busol es	semen it	the corr	asu bio	peoles:	(4)
II. Shorebirds, Gulls and Terns: Killdeer Common Snipe Long-billed Curley	PREVIOUS PREVIOUS	PERIOD	500 400 150	8-1 8-1 6-30	END OF	8-25	tricance	igot Lag		500 150 250
Spotted Sandpiper Willet Greater Yellowlegs Long-billed Dewitcher Western Sandpiper	10 2 3 10 20	5-10 5-10 7-1 7-1 7-1	200 200 30 150 500	6-30 7-15 7-15 7-15 7-30	END OF END OF	8-15 PERIOD PERIOD PERIOD PERIOD	os Jania		sat Junia	200 200 30 150 500
Avocet Wilcom's Phalarope California Gull Branklin's Gull	10 4	5-10 5-10 5-10 7-1	200 3,000 250 50	1-15 7-15 8-15 7-15	END OF END OF END OF	PERIOD PERIOD PERIOD PERIOD		. #1	need Seem	3,000 250 50
Forester's Term Common Term ok Term	12 10	5-10 5-20	150 300 250	7-30 (over)	END OF	ERIOD PERIOD	of our bedge		Sileto	150 350

		(2)	)		3)		4)		(5)	1	(6)
Mot	ves and Pigeons: urning dove ite-winged dove	2	5-15	ь	8-20	END OF	SPISICO	Sacros' Fig	1 1875 CB	GeA -	600
Go: Duc Ho: Mag Rav Cro	edaceous Birds: lden eagle ck hawk rned owl gpie ven ow	BROLENE O  BROLENE O  BROLENE O  BROLENE O  BROLENE O  BROLENE O  BROLENE O	OF PERI 5-28 5-28 OF PERI OF PERI 6-10	OD 100 1 1 OD 15 OD 20 OD	5-15 8-10 6-10 8-10 8-20 7-10 6-7 8-15 8-20 8-12 6-10 8-20	2 1 20 END OF 1 2 2	7-20 8-30 6-10 8-30 PERIOD 7-10 8-27 8-29 8-31 6-10 8-31		iabuza apera	ensil nosi den ell inn den ell inn den ell inn substitution den ell inn den ell inn ell inn den ell inn ell inn den ell inn ell inn el	250 300 250 4 4 25 30 25 50

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. <u>Doves and Pigeons</u> (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

INT.-DUP. SEC., WASH., D.C.

3-1751 Form NR-1A MIGRATORY BIRDS (other than waterfowl) (Nov. 1945) Refuge Red Rock Lakes (5) evob begain edin(6) (1) (2) (3) Species First Seen Peak Numbers Last Seen Production Total Number Total # Total Estimated Common Name Number Number Number Date Date Colonies' Nests Young Number Date Golden eagle Duck hawk I. Water and Marsh Birds: Peaked During 10/5 Earnd Grebe Previous Period Lest Period 9/10 Western Grebe 9/30 Pied-Billed Grebs 9/22 100 White Pelicen 9/10 Double-Created Cornorant 10/8 Great Blue Reron 10/21 Black-Growned Might Heron 20 9/13 American Bittern 10 9/28 Sadhill Grane 1,000 9/7 Sora Rail ST .V bis Reported by .... INSTRUCTIONS as found in the A.O.U. Cherklist, 1931 Edition, and list group in A.O.U. eto. In addition terms as "seagull", "tern" II. Shorebirds, Gulls and d general Terns: Obba ed bluode loined yn froger e f gnirub eguist ne species o rerns: Killdeer bas Bears Lines Previous Period Last Period 11/3 significance 300 12/8 400 Course Snipe 100 Willet 20 Greater Tellowlege 50 Long-Billed Dowltcher 100 200 Western Sandpiper The first re 100 9/8 Avocet 1,000 9/30 Wilson's Phalarope The greatest eak Numbers 11/2 California Gull of the species 9/10 25 Franklin's Gull The last ref 9/12 100 Forester's Tern 9/5 9/21 100 Common Tern on observations and notual counts. Estimated nu roduction Black Tern 100 Estimated total number of the s(revo) using the refuge during the period concerned.

(1)	(2	2)	2013	S) YEATTLE	(4	)		(5)	(6)
III. <u>Doves and Pigeons</u> :  Mourning dove  White-winged dove	Previous	Period	Last P	Months	2	11/10	sek Zekes	Refuge Red R	50
Large Hingon dovo	q	Seen	tesJ	bers	Peak Nu		First	(1)	
IV. Predaceous Birds: Bald Golden eagle Duck hawk Horned owl Magpie	Previous Previous Previous Previous	10/1 Period Period Period	1 5 1 10 Last Po	12/20 11/10 9/30 10/5	1 1 1 3	12/20 12/30 9/30 11/20 12/31	Number	non Name	10
Raven Crow Goshawk Sharp-Shinned Hawk Red-Tailed Hawk Margh Hawk Sparrow Hawk	Previous Previous Previous Previous Previous Previous	Period Period Period Period	Last Port Port Port Port Port Port Port Por	9/10	2 1 1 1 1 1 1 1 1	12/25 10/1 10/3 11/5 12/28 10/2		Brobe ind Grobe Ricen rested Cemores ne Heron puned Hight Horon Hitter	100 3 2 12 35 8
C00, E		1/6	4			Reporte	d by Ro	hald V. Papike	

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gavilformes to Ciconilformes and Gruilformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. <u>Predaceous Birds</u> (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge <u>during the period</u> concerned.

3-1750b

### UNITED STATES

## Form NR-1B DEPARTMENT OF THE INTERIOR

# (Rev. Nov. 1957) FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILDLIFE

## WATERFOWL UTILIZATION OF REFUGE HABITAT

Reported by R	onald V.	Papile	Title	Biologist		
(1) Area or Unit	Hab	2) itat	practic	(3)	(4) Breeding	(5)
Designation	Type	Acreage		Use-days	Population	Production
UNIT I	Crops Upland Marsh		Ducks Geese Swans	1,379,868	Lioli 10	380
& Orceks	Water Total	350	Coots	39.576	122	200 610
UNIT II Upper Lake	Crops Upland	CONTROL ON STATE OF S	Ducks Geese	2.069.802	1,689	1,648
tavinė luo lyga galyk aks des Laso	Marsh Water Total	2-880	Swans Coots Total	1,3,236 506,076 2,662,118	16 8h 1,588	108 1,756
UNIT III Swan Lake	Crops Upland		Ducks Geese	3hl 967 50h	562	645
but not the rela-	Marsh Water Total	100 300 300	Swans Coots Total	7. h22 112. h61 165. 35h	16 19h 1,078	558
UNIT IV	Crops Upland	00 LJ 60 63 60 000000000000000000000000000000	Ducks Geese	689.93k	954	1,328
And business	Marsh Water Total	6,000 2,000 8,000	Swans Coots Total	11,132 447,971 1,149,541	1,682 2,684	2,970 4,310
UNIT V	Crops Upland		Ducks Geese	2, 345, 775	778	894
pated by	Marsh Water Total	3h0 1,200 1,5h0	Swans Coots Total	16,078 674,768 3,039,645	980 1,782	3 1,656 2,563
INTE VI	Crops Upland	26,566	Ducks Geese	68.99h 7.560	96	61
	Marsh Water Total	15.0 26,766	Swans Coots Total	1,237 1,87h 79,665	26 124	3 3l <sub>4</sub> 98
UNIT	Crops Upland	26, 556	Ducks Geese	6,899,3h0 50,400	4,282	4,956
.egs Jngli	Marsh Water Total	6,780	Swans Coots Total	123,683 1,87h,355 8,9h7,778	96 3,388 7,800	5,526 10,545

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descrip-

tions.

- Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding
  Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

3-1750c Form NF C (Sept. 1960)

## WATERFOWI UNTER KILL SURVEY

Refuge Red Rock Lakes

Year 1969

			GHOLLOUNIGHL					
(1)	(2)	(3)	(11)	(5)	(6)	(7)	(8)	(9)
Weeks of	No. Hunters	Hunter		Total	Crippling	Total	Est. No.	Est. Total
Hunting	Checked	Hours	Waterfowl Species and Nos. of Each Bagged	Bagged	Loss	Kill	of Hunters	Kill
10/4-10	76 broose ed blue of no.	of bas us noits frogera	Widgeon ho, Scaup 32, Gadwall 2, Mallard 11, M Teal 11, Sheveler 9, Canvastack 7, CM Teal 7, Nedhead h, Goldenaye 3, Ruddy 2, Ming-necked 1, Bufflehead 1, C. Teal 1, Pintail 3.	163	to survey	193	105	267
10/11-17	5	56	Widgeon h, Scaup h, Mallard 2, Goldensys 1, Ruddy , 1, Merganser 1.	13	eken to col	16	sho sho	es.
10/18-24	2	6	widgeon 2, Goldeneye 1, Shovelerl.	4	1	5	5	13
11/8-14	3 Green	(8) 3 800	Hallard 5, id won 3, Of Teal 2, Scaup 2, Goldeneye L.	13	), Redhead (1).	15	riff. 3	15
TOTALS	- 86	210	Widgeon 55, Scaup 38, Gacuall 22, Mallard 18, BW Teal 11, Showsler 10, GW Gal 9, Canvasback 7, Goldeneye 6, Redhead b, Ruddy 3, Pintail 3, C. Teal 1, Bufflehead	193 Water	1 numbers o 1 numbers o 1 numbers o			359
	galbuli	week, in	1, Ring-necked 1, Herganser 1, Unidentifi- ed 3-mirub eguler eds no bestund odw sresinm		mm Letot e	ij ejami eda zrej	(8) Est	
			ercent. Column 9 = Column 8 x Column 7.	to 100	projected	l sample	(9) Kil	
	03-8460		(over)					

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Greenwinged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.

Grippling Total

- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. Column 9 =  $\frac{\text{Column 8}}{\text{Column 2}}$  x Column 7.

E-IIA

de-UASI

Refuge Red Rock Lakes

Months of \_\_\_\_\_\_ to \_\_\_\_\_\_, 194\_\_

(1) Species	(2) Density	(3) Young Produce	d	(4) Sex Ratio	R	(5) emova		(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd. Estimated	Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Plue Grouse a partie of the formula	Aspen-fir-willow	ubmitte s areas	eruilure de list lgres s lgms evel	mbo Fi	ch as to observing ago dard type sy possible. In represents eas should be	Star Star Wher	stc. used l'cou	and in rie, ld be	for 15 news	Severe winter with beary snows caused a noticable reduction in the populations
Sage Grouse no so	3,000 acres co Lautos bus suolid Sagebrush-grass sb 3,000 acres to 1				g habitat.	nedir	rid e	itati i appl	in represe	(3) YOUNG PRODUCED:  Deirog sids ensistements off
Gray Partridge	Sagebrush-meadou 21,000 acres ou Latreo galact equit	the rep	during	97	each categor	nt '	redam	tal :	Indicate to	Pond and Filk Springs, also
Also	overed in survey.	sers l	ns noti	alc de	etermine pop nformation n	b of i fn	used rtine	bodd er pe	Indicate me include oti	(7) REMARKS:
			d,	186	i should be	atev	od ce	peri	able to the	* Only columns applic
£191										

Form NR-2 - UPLAND GAME BIRDS.\*

(2) DENSITY:

(1) SPECIES:	Use correc	t common	name.
--------------	------------	----------	-------

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area .ered anoliouborini Jahl of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- REMOVALS: Indicate total number in each category removed during the report period.
- Estimated total number using the refuge during the report period. This may (6) TOTAL: include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

Refuge and Real lakes Months of to to 194 69

(1) (2) Density				ng ced	(4) Sex Ratio	R	(5) emova		(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat		Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Nue Groves	Contifere, 3, 200ac	enougn aneral land,	g edj	eme	pes should t ch as to obs reverting ag		not	tud i	oktaneotrik Legr <b>35</b> nava	
Ruffed Grouse	Aspen-Pis-Willows 3,000 acres Sagebrush grass 3,000 acres	ed in W nomitte e areas	s list res s sampl		dard type sy e possible. n representa ess should t	where	moo i	ed bl	uod 75 om	
, zóm	Mons and actual co	avreado	uodn	beas	produced, b g habitat,	nuo	io o	number 13s31	Estimated in represen	(3) YOUNG PRODUCED:
по ва	s, etc. Indlude da	dassant	q eye:	l-tud	rily to wild	emin labl	g sel	appi es 1	This column	(4) SEX RATIO:
	boling drager and	luring	bevor	r ret	each categor	nl	tedaw	Ledi	of edapibil	(5) REMOVALS:
o seasons.	nt period. This m	he rep	ring g int	ge dy	ing the refu us those mig	eu r	numbe birv	into ident	Estimated i	(6) TOTAL:
Also	covered in survey.	area e	on an	dalı Ja do	stermine pop nformation n	b od k dn	used	bood ar pa	Indicate ma include oth	(7) REMARKS:
				ibeal.	ed biwone b	piev	od de	perd	able to the	* Only columns applic
1613										

UPLAND OAP BIRDS

Refuge Med Reek Calego

Form NR-2 - UPLAND GAME BIRDS.\*

(1)	SPECIES:	Use correct common name.
(2)	DENSITY:	Applies particularly to those species considered in removal programs (public
quester	Pertinent inform specifically re Idst introductio	hunts, etc.). Detailed data may be omitted for species occurring in limited umbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area
		of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
(3)	YOUNG PRODUCED:	Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
(4)	SEX RATIO:	This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
(5)	REMOVALS:	Indicate total number in each category removed during the report period.
(6)	TOTAL:	Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
(7)	REMARKS:	Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

Refuge Red Rock Lakes Month

Months of September

to December

, 19 69

(1) Species	(2) Density		(3 You Produ	ng	(4) Sex Ratio	R	(5) emova	ls	(6) Total	(7) Remarks			
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent informations specifically related introductions.	equested.		
Blue Grouse		enoug Lateral Land, land, in be	s lis ures :	Lodmy	ypes should uch as to ob reverting a ndard type s re possible.	ods, Sta Wha	eta. used	rie, ld be	of cover informatic swamof up grass pra No. 7 show				
huffed Grouse		e area d under	Bemp. dicate		on represent reas should	nts or a	apris	ns an mple	50				
Sage Grouse	Sage Brush, Grass 3000 acres		uodn	08.560	g produced, ng habitat.					YOUNG PRODUCED:	(3)		
Gray Partridge	Sage Brush, Meadow 24,000 acres	heasan	key, 1	wid f	ntly to wille.	prim ilab	lles f ava	n app ies i	35	SEX RATIO:			
	the report period.	during	bevon	ry re	each catego	nt a	odawa	Lajo	Indicate t	REMOVALS:	(5)		
ay n seasons.	ort period. This i									TOTAL	(9)		
Also	covered in survey.				determine po				Indicate of	REMARKS:	(7)		
				beer	ed binome be	78 A U	a bot	taq a	() of eldso	nly columns appli			
								*		*			
1613											,		

Form NR-2 - UPLAND GAME BIRDS.\*

(1)	SPECIES:	Use cor	rect common r	ame.	•					
(2)	DENSITY:	Applies	particularly	to	those	species	considered	in	removal	progra

Pertinent information not specifically requested. List introductions here.

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

(June 1945) Refuge Red Rock Lakes

Calendar Year 1969

(1) Species	(2) Density	(3) Young Froduced			(jt)	uatea			(5) sses	In	(6) troductions	(7) Estima Total Re Popula	efuge	(g) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter	Number	Source	At period of Greatest use	As of Dec.	
Black Bear	a should be detailed enough scure the general picture. land, bottomiend hardwoods	egyt neve fo at ma enertpotr	ibn ja	seq so s	JO.	cover but s	20 80	as is is	the a tolor and h	nt berl	nanges docu ish the des pruce swamp	3	1	
1913	I delife Management Series I ald be based on actual obser	ni bedal nde bedal	1	toda es,	(II)	जुड्ड इ	1748. 116.	an:	g ere	e se	rase prairi nould be us	100		HeF
Mule Deer	signes to sale bus been bods	on Kaning	3	inari inam	e s Re	ignes und, et	bs:	BD:	newet bal e	bla bla	ode anera r	150	50	40:60
Moose	.ogr	6	4	10-3	ttro	20	ne di	ern.	Latot	be to	mittell : GEO	100 45 MOON	20	M20
Antelope	during the year.	64	2	12.00	do	io ni	tet	(888)	Lato	- 931	olbel	147	(4)	N29 P5L Y64
	sates indicate total lesses	tive side	LEe	30	ab Ta	recor	men Bi		to at	ind i	da no daco	CSSEST	(5)	
	which stock was secured.	may from	30	10.	) Bu	tor 5	ZIA 1	edi	un ed	0.22	MS: India	OFFICEROPTE		
43	t to to trace at part of of	zeloege .IE	[DA	10	20	dele sia	poi	Ďa:	rie 13 a Sebrud	ed)	evio desta	POPULARION	(1)	
from	cach species as determined	females o	58	i la e	Layes of a	to a	1231 123	19 (2 (n.tt)	eq ed	1 1 33 10 10 10 10 10 10 10 10 10 10 10 10 10 1	oldal Siell	SEA PATICE	(8)	

hemarks:

Reported by Ronald V. Papike

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisians white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

Reported by March V. Marine

- (4) REMCVALS: Indicate total number in each category removed during the year.
- (5) LCSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE
  POPULATION: Give the estimated population of each species on the refuge at period of its
  greatest abundance and also as of Dec. 31.
- (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

Refuge Red Rock Lakes

Year ending April 30, 1969

(1) Species	(2) Deneity				(3) ovals	each s	n of a	Di	a_(r)	(5)				
ote, etc.	white-tailed jackrat found in the "Field Bo	squirrel wee are	JD0	el, curr	at a	name	al, g	Share	Trapp	oing	Refuge Shipped	ted	THE REAL PROPERTY.	Total
Common Name	Cover Types & Total  Acreage of Habitat	Acres Per Animal	Hun ting	Fur Harvest	Predator Control	For Re- stocking	For Re-	Permit Number	Trappers Share	Refuge share	Total Ref Furs Ship	Furs Donated	Fure Destroyed	tion
s informe- goves	Willow, agent, streams	160	1 85	8	ak be	press	30e ed	7-67II	100%					15
mitted, tarker	2,600 acres March-water 10,000 acres	DE 5	lype gy; spea	34	oo da	in ea	or process	s lowned	ener Ener					2,000
preupine detaut of	Upland, forest	66	(3 ) 08 3	Cove	as.	c typ	cove	area of	arit					75
oyotenofied basi	Marchmeadow, upland	5,200	ad 1	nsiq	u "qı	swa s	aprac	eples:	naf					5
Towns sample	Maksh, meadow, upland	2,600	F T	55	eries i on	ent S base	nagen ld be	aM salib	C.FNW t.tm					10
ongtailed Weasel	Meadow, uplands, forest	127	bes	60	ijem . sz	irvey Remar	s. S	plemarea teated u	nes#					150
ads to of in	Lakes, streams, marsh	td cater	as 7	41	Teda	un la	dod s	dcate th	e Ind		:sa	LVOM	E (E)	350
dger factor vote	Meadew, upland, forest	6la	nexis	10	ing s	Sulon na wo	i , za	viols ye	FUE					30
riped Skunk	Mersh, meadow, upland 26,000 acres	130	ISG	195	la II.	iura	becca	abare-tr	nO si	UK TO	HOTTI	I SPOS	(H)	500
beat well we see	Upland, forest	2,500	ilpg ite	10	Lag 3	0 150	mum s	da e esal.	beil®				homo	10
ther agencies	o to anolyuditent of h	e donate	fur	bins man	non.	ibnoc	paga	and to a	esa ons					

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

(5)

Popula-

000,8

5000

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Reported by dolm Y. Annay, Diclorian

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1757 Form NR-7 (Rev. June 1960) NONAGRICULTURAL COLLECT. S, RECEIPTS, AND PLANTINGS

Refuge Red Rock Lakes Year 19 69

	(See			s and Recks, tre				(	Plant Marsh - Aqua	ings tic - Upland	)		
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
							Sparrow Pond, east shore- line		150 yards	100 Scirpus acutus, rootstocks, 50 Carex rostrata, rhizomes	8/21	Unknown	

<ul> <li>(1) Report agronomic farm crops on Form NR-8</li> <li>(2) C = Collections and R = Receipts</li> <li>(3) Use "S" to denote surplus</li> </ul>	Remarks: Results to be evaluated during the 1970 summer.
Total acreage planted:  Marsh and aquatic 150 yards shoreline	
Hedgerows, cover patches Food strips, food patches	
Forest plantings	
	7414

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Cultivated		Permittee's Share Harvested		Government's Share or Return Harvested Unharvested				Green Manure, Cover and Water-		
Grown Grown	Acres	Bu./Tons	Acres	Bu./Tons	Tons Acres	Bu./Tons	Acreage Planted			Acreage
None	tivetion - Report to	t planted during the cold to the store a close and the cold the co	while some the period of the second of the s	Crops, estimate the crop of crops of grain available the crops the crops the crops the crops of the crops of the crops.	is double , yad bus , o	de property of the control of the strong of the strong trades, on the control of	ed by more than one or that or tha	MORE		CALTAD - GRYSLAD VELTAC ACRE NE-9
	oger. Or	CLOD'S	- gebon		padod . 3			Marie a		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
o. of Permittees:	Agricultur	ral Operation	ons NOS		Haying	Operations	2	Fallow A MONE	g Operations	19
o. of Permittees:  Hay - Improved (Specify Kind)	Agricultur Tons Harvested	al Operation	Cash Reven		Haying	Num	ERME	NONE		19 ACREAGE
Hay - Improved	Tons		Cash	ue	2.5	Num	ber mals	MONE Grazing	g Operations	38
Hay - Improved	Tons		Cash	ue 1.	RAZING	Num Ani	ber mals	Grazing AUM'S	g Operations  Cash Revenue	ACREAGE
Hay - Improved	Tons		Cash	ue 1. 2.	Cattle Other	Num Ani	ber mals	Grazing AUM'S 2,822.0h	Cash Revenue 25,6hh.08	ACREAGE

## DIRECTIONS FOR PREPARING FORM NR-8 CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

## REFUGE GRAIN REPORT

del ton the Man Man and Manage

(1)	(2) On Hand Beginning of Period	(3) Received	(4) Total	GRAIN DISPOSED OF				(6) On Hand	(7) Proposed or Suitable Use*		
VARIETY*		DURING PERIOD		Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus
Wheat	2,000	1,500bu	3,500			1,000	1,000	2,500		2,500	
	(8) Co. (8) No. (8) (9) (8)	east of colu- east of less is a prop- attable for great railre- erd stored of leate here	ans Z and 3. ohumn 5. sed break-c secting new ad station in a refuge: 'i	crops. -a shippin seudquarte f gram al	g and rece is granary,	ving. " etc.	d in column		if grain b		
	(1) 24s 5 6 6 6 6 7 8	each typo days our, ilo, new en ill not suffi ther retings ort all gra		arately sa a red May alkado say e details aly domes	d specifical wheat, din beans, or re necessa- te grains;	hy, so film thin wheat Mere 1 ty in con- ngustic at	corn, yellon apring whe sting as obtained train dering train d other seed such an train		equant con et concluse d sopposite supplies to d on NR-9.		
69 13		komi in s considere to compo	equivalent - 56 lb. or ing volume	80 10	so or more of: Earn soy beans s, recitifus	report to shelled) - -60 lb., 1 the cobic	contegrators (Dist - 50 No.	(E) PA DY ( costesso- (GEL)	respondent of Edg stable— andresses for		
(8) Indicate shipping o	r collection	points C	anas Kati	oral Wild	life Refu	ige.		ento barato.	CONTRACT OF		1

<sup>\*</sup>See instructions on back.

### REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

Refuge Red Rock Lakes

Year 19.69

Botulism	Lead Poisoning or other Disease
Period of outbreak  Period of heaviest losses  Losses:  Actual Count Estimated  (a) Waterfowl (b) Shorebirds	Kind of disease  Species affected  Number Affected  Species Actual Count Estimated
(c) Other  Number Hospitalized No. Recovered % Recovered  (a) Waterfowl (b) Shorebirds (c) Other  Areas affected (location and approximate acreage)	Number Recovered  Number lost  Source of infection  Water conditions
Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.	Food conditions
Condition of vegetation and invertebrate life	Remarks_

TIMBEL KEMOVAL

	Res	fuge Red	lock Lakes			Year 195 69			
Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut	
		NO TIM	BER RE	HOVED TR	ISYE	AR.			

Total income.....

No. of units removed B. F. Method of slash disposal

Total acreage cut over

Cords.....

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge

Red Rock Lakes

Proposal Number

Reporting Year

(1)	Target Pest(s)	of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount  of  Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		NO PESTICII	ES WE	RE APPLIE	D THIS Y	AR.		

<sup>10.</sup> Summary of results (continue on reverse side, if necessary)



"Now what are they up to?"

McLaury



They had less than a 30% chance of surviving to flight stage.

MoLaury



Trumpeter swans on Culver Pond share their winter feeding site with common goldeneyes.



Black-orowned Night Heron

McLaury

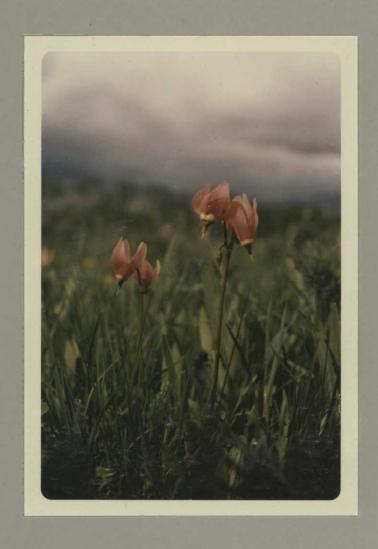


Shiras moose above Upper Red Rock Lake. McLaury



Shiras moose in Upper Red Rock Lake.

McLaury



Shootingstars

by Annear



Nesting island on MacDonald Pond.

McLaury



Sheep Mountain Natural Area.

Marshall



Headquarters

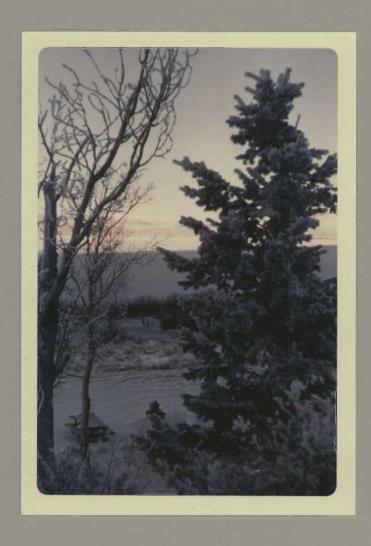
Annear



Private Land

Refuge Land

Annear



Picnick Grounds

by McLaury

3-1750 Form NR-1 (Rev. March 1953)

### WATERFOWL

REFUGE Red Rock Lak							Septembe			_, _, <u>_,</u>
:					(2)					
1			Weeks	of r	eport	ing p	riod			
	8/31-9/6:	9/7-13 :	9/14-20 :	9/21-27	9/28-10/4:	10/5-11 ::	LO/12-18 :	10/19=25 :		11/,2-
Species :	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10
Whistling								250	1,500	1,500
Trumpeter	175	175	175	150	150	150	110	100	50	150
Geese: Total Swan	175	175	175	150	150	150	40	350	1,550	1,650
Canada	150	150	150	150	150	100	100	400	400	500
Cackling	130	120	150	150	100	100	100	400	400	200
Brant										
White-fronted										
Snow										
Blue							the latest			
Other Total Geese	150	150	150	150	150	100	100	400	400	500
ucks:										
Mallard	10,000	5.500	5,000	5,000	2,000	3,500	3,500	2,000	1,000	1.00
Black										
Gadwall	3,500	250	500	500	450	500	500	400		
Baldpate	20,000	20,000	30,000	40.000	40,000	20,000	4.000	4.000	3,000	3,000
Pintail	6,000	2,500	1,500	1,500	1.500	1.000	600	100		
Green-winged teal	500	500	500	500	500	500	250	200	250	250
Blue-winged teal	1,000	700	500	500	500	500				
Cinnamon teal										
Shoveler	500	300	600	600	600	500				
Wood							000			
Redhead	2,500	1,700	1,000	1,000	1,000	1,000	800	200	500	500
Ring-necked	700	700	250	250	250	300		100	100	100
Canvasback	600	600	500	500	300	150	150			
Scaup Lesser	1,000	200	2,000	2,000	3,500	1,500	7.00	250		07
Goldeneye	50	10	50	50	50	50	100	250	250	250
Bufflehead	100	800	100	100	100		50	50	50	50
Ruddy Name Name	1.500	2,000	1.000	1,000	25					
Die Common Merg.	1.8 000	25 740	25			20 500	0 050	7,300	5,150	5,150
Total Ducks	48,250	35,760	43,525	53,525	50,775	29,500	9,950	1,300	29.130	יכב פכ
oot:	19,500	25,000	30,000	30,000	30,000	25,000	1,000	250		· ·

3 -1750a

Cont. NR-1 (Rev. March 1953)

# WATERFOWL (Continuation Sheet)

(1)	1/9-15:	Weeks	of 11/23-29:1	(2 repor 1/30-12/6: 14:	ting 12/7-13:	peri 12/14-20: 16:	o d 12/21-27: 17	18	(3) Estimated waterfowl days use	: Production : Broods:	tion Estimate total
Swans: Whistling	500	milesol o	data ve	orded un	er (3).	Ageli			26, 250		
Trumpeter	200	200	175	150	150	150	150		17,430		
eese: Total Swans	700	200	175	150	150	150	150		43,680	A No. of the last	
Canada Cackling	350	100	250	100		ed on obs	9-003		23,450		-401-0
Brant White-fronted Snow	- T-		th bolony	52 000 X 1	amport of	gde ha	mant from	esep ebe		-	
Blue MINKK Total Geese	350	400	250	100					23,450		
ucks: Mallard Black	2,000	2,000	2,000	1,000	1,000	500	250		330,750		
Gadwall	200	PERSON DO	red and altera	ld he ed	ad in ap	proper ate	abecee	Special	46,200	m q po t	200
Baldpate	3,000	3,000	3,000	3,000	1,500	500	500	MATHEMAN	1,389,500	d ng the	
Pintail									102,900		
Green-winged teal	150	100	100	100	100	100	100		32,900		
Blue-winged teal Cinnamon teal									25,900		
Shoveler									21,700		
Wood Redhead	000	200		70	2		Swediel V	Bund len	gl 000	-	-
1	200	100	50	50 50	٥٢	25	25	SO INSTRUCT	74,200 21,175		-
Ring-necked Canvasback Scaup Goldeneye	50	50	50	50_	25	25	45		19.600		-
Scaup	-	3,525			5,02,00	May Mest	100 G250U	DASA AS	71.400	a suye	-
Goldeneye	800	800	500	500	500	350	300		34,020		
Bufflehead 3	50	20050	50	25	25	25	25		13,650		
Ruddy									38,500		
MXNAX Common Merg.		1,650			BATTE	Lings Redisc	RED MOTERIAL	HADDED TO	525	TABLE N	T'SI
Total Ducks	6,250	6,100	5,750	4,725	3,150	1,500	1,200		2,222,920		V
oot:	A SHOW	O)	Tobal P					ZMWRb.	1,125,250		
				(ov	000)	NA TO B					

Total	(5) Days Use	(6) Peak Number:	(7) Total Produc	tion		SUMMARY	1,125,250	
Swans	43,680	1,650 :		Princip	al feeding areas	Upper,	Lower Lake an	d River Marsh
Geese	23,450	500 :	50	25 25	25 25	7	13,650	
oucks 2,	222,920 :	53,525	800	Princip	al nesting areas	Over w	ater in carex	stands
Coots 1,	125,250	30,000	go	adjacer	nt uplands close	to mars	h edge.	
				Reporte	d by Ronald V.	Papike	su*300	
(1) Species: (2) Weeks of	2,	In addition reporting pe	to the birds	listed on form,	ldlife Refuges F other species o opriate spaces. ignificance.	ccurring	on refuge du	uring the nould be given
	g Period:	Estimated av	erage refuge	populations.		TOTAL PARTS	23,150	
3) Estimated Days Use:	d Waterfowl		ly population	s x number of d	ays present for	each spe	cies.	
lı) Productio	on:	breeding area	as. Brood co	unts should be	on observations made on two or m asis in fact sho	ore area	s aggregating	
(5) Total Day	ys Use:	A summary of	data recorde	d under (3).			\$6,250	
6) Peak Numl	ber:	- Maximum numbe	er of waterfo	wl present on re	efuge during any	census	of reporting	period.
7) Total Pro	oduction:	A summary of	data recorde	d under (h).				

3-1751 Form NR-1A MIGRATORY BIRDS (other than waterfowl) (Nov. 1945) September to December 19869 Refuge Red Rock Lakes Months of Last Period Previous Period (5) evob begalwestin(6) (1)(2) (3) (4) Species First Seen Peak Numbers Last Seen Production Total Number Total # Total Estimated Number Number Common Name Number Date Date Date Colonies' Nests Young Number Golden eagle revious Duck hawk I. Water and Marsh Birds: Peaked During boirse Horned owl 10/5 Eared Grebe Last Period Previous Period 9/10 Western Grebe tolar. 9/30 Pied-Billed Grebe 50 9/22 White Pelican 2 9/10 3/8 Double-Crested Cormorant was from his 10/8 Great Blue Heron bor well beile lie 10/21 Black-Crowned Night Heron March Hawk 2 9/13 American Bittern accivex 10 9/28 andhill Crane 1,000 9/7 Sora Rail Reported by Rorald V. Papike INSTRUCTIONS as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. Use the correct names II. Shorebirds, Gulls and "seagull" Avoid general Terns: Des ed bluone loireq an troqer elt gairub eguier a form, other species of Terms. printe space Killdeer Previous Period significance Last Period 11/2 300 12/8 400 1 Common Snipe 100 Willet Greater Yellowlegs 20 20 50 50 Long-Billed Dowitcher 9/30 200 400 thy species The first rel Western Sandpiper irst Seen 15 100 9/8 Avocet 9/30 250 1.000 Wilson's Phalarope eak Numbers 11/2 150 California Gull 10 9/10 Franklin's Gull The last reft 100 9/12 Forester's Tern off observe tons and totus counts, 9/5 100 Common Tern Estimated nur roduction 9/21 Black Tern 100 Estimated total number of the s(revo) using the refuge during the period concerned

	(1)	(2)	20(3) V90TA9	(4)	(5)	(6)
***	2 2 2 2 2	madein anti-	than waterfowl)	(other		(Nov. 1945
111.	Doves and Pigeons:	tember to December	CHAMPION CHAMPION	27/2	Refuge Red Rock Lakes	~
7	Mourning dove White-winged dove	Previous Period	Last Period	2 11/1		50
	will te-winged dove	ubo19 gas	d Last bers	(C)		1)
	1 4 Total Estim	Number Total	bers Last M	Peak Nur	ries First Seen	1906
	Predaceous Birds: Ba		1 12/20	1 12/2	Number	7077100 4
	Golden eagle	Previous Period	5 11/10	1 12/3	0	10
	Duck hawk	Previous Period	1 9/30	1 9/3		2 10
. 00	Horned owl	Previous Period	10 10/5	11/2	0	
21	Magpie	Previous Period	Last Period	3 12/3		150
03	Raven Crow	Previous Period	Last Period	2 12/2		100
00	Goshawk	Previous Period	2 9/10	2 12/2		3
OJ	Sharp-Shinned Hawk	Previous Period	1 9/2	1' 10/3		
- 35	Red-Tailed Hawk	Previous Period	Last Period	1 11/5	Heron	90/H 1 120
5.1	Marsh Hawk	Previous Period	25 10/1	1 12/2		
03	Sparrow Hawk	Previous Period	3 9/10	1 10/2		A.S. rican Bi
	1,00	(2)			ine in	Smdhill Cre
		177	*			Sora Rail
				Repo	rted by Ronald V. Papike	
			INSTRUCTIONS			
*	(1) Species:	Use the correct name		A.O.U. Checklis	t, 1931 Edition, and list g	roup in A.O.U.
	(2) Spoots.				. In addition to the birds	_
					porting period should be add	
					those species of local and l	
00		significance. Group			iiformes to Ciconiiformes and	nd Gruiiformes)
Č4.		1.			(Charadriiformes)	Common Spin
00		1	III. Doves and P			Willet
05			IV. Predaceous	Birds (Faiconii)	ormes, Strigiformes and pred Passeriforn	naceous
	(2) First Seen:	The first refuge rec	ord for the specie	s for the season		ings mintage
00	1	1110 11110 101450/100	15	11 11	1	JepovA .
00	(3) Peak Numbers:	The greatest number	of the species pre	sent in a limite	ed interval of time.	Wilson's P
	, alle		10 50	11 . 11	Gull	California
42	(4) Last Seen:	The last refuge reco	rd for the species	during the seas	son concerned.	Franklinis
			3			Forester's
00	(5) Production:	Estimated number of	young produced bas	ed on observation	46	Common Tern Elsek Tern
	(6) Total:	Estimated total numb	er of the species	using the refuge	e during the period concerne	
	(0) 10041.	and of the first finding	or or one pheeres	abing one reruge	daring the period concerne	INTERIOR PORTLAND, DREGON

3-1750c Form NR-1C (Sept. 1960)

### WATERFOWL HUNTER KILL SURVEY

Refuge Red Rock Lakes

Year 196 9

			CHULLOUILGEL					
(1)	(2)	(3)	(17)	(5)	(6)	(7)	(8)	(9)
leeks of	No. Hunters	Hunter		Total	Crippling	Total	Est. No.	Est. Total
Hunting	Checked	Hours	Waterfowl Species and Nos. of Each Bagged	Bagged	Loss	Kill	of Hunters	Kill
10/4-10	brocst ed bin of no.	175	Widgeon 46, Scaup 32, Gadwall 22, Mallard 11, BW Teal 11, Shoveler 9, Canvasback 7, GW Teal 7, Redhead 4, Goldeneye 3, Ruddy 2, Ring-necked 1, Bufflehead 1, C. Teal 1, Pintail 3.	1163	30	193	105	267
10/11-17	5	56	Widgeon 4, Scaup 4, Mallard 2, Goldeneye 1, Ruddy , 1, Merganser 1.	13	3	16	20	64
10/18-21	2	6	Widgeon 2, Goldeneye 1, Shovelerl.	4	1	5	5	13
11/8-14	3 30 20	(E) 3200	Mallard 5, Widgeon 3, CW Teal 2, Scaup 2, Goldeneye 1.	13	bsedbead 2 (1)	15	nig niw 3	15
TOTALS	86	240	Widgeon 55, Scaup 38, Gadwall 22, Mallard 18, BW Teal 11, Shoveler 10, GW Teal 9, Canvasback 7, Goldeneye 6, Redhead 4, Ruddy 3, Pintail 3, C. Teal 1, Bufflehead 1, Ring-necked 1, Merganser 1, Unidentifi-	193	36 36 2 and 1		-	359
	gnithul	week, in	ed 3. The spiler and to be mid only exacting		non Latot e		(8) Est man	
			ercent. Column 9 = Column 8 x Column 7.	to 100	projected	sīqmsa I	(9) XEX	
	10348-60							
			(over)					

Year 196 9

INSTRUCTIONS

Est. Total		(1) (2) (3) (4) (5) (7) (7) (6) (7) (7) (7) (8) (7) (8) (8) (8) (9) (10) (10) (10) (10) (10) (10) (10) (10	
KEIL	(1)	The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.	MIL
267 6lt	(2) (3) (4)	The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.  Record the total number of hours the hunters spent hunting on the refuge.  List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-	I
15	3	winged Teal (1).	
359	133	Record total numbers of waterfowl bagged.  Record total numbers of waterfowl reported knocked down but not recovered.	T
	(7)	Total of Columns 5 and 6.   Bufflehead   Buf	
	(8)	Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).	
	(9)	Kill sample projected to 100 percent. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.	

3-1750c, Form NR-10 (Sept. 1960) Refuge Red Rock Lakes

Months of September to December , 19 69

(1) Species	(2) Density	(3 You Produ	ing	(4) Sex Ratio	R	(5) emova	ls	(6) Tot <b>a</b> l	(7) Remarks			
Common Name	Cover types, total acreage of habitat	Acres per Bird	es poods		Percentage	8	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.		
lue Grouse	Conifers 3000 acres Aspen-Fir-Willows	e area	taile the lture s lis ures semp	oe de soure gricu mbol Fig Fig stive	ypes should not as to ob reverting a ndard type s re possible. on represent	ods, Sta whe nts	ardwo etc. usec d cou	and i rie, ld be ns ar				
age Grouse	3000 acres Sage Brush, Grass 3000 acres	7		oased	reas should g produced, ng habitat.	mov	lo r	odaun	bed 751 ted	YOUNG PRODUCED:	(8)	
ray Partridge	Sage Brush, Meadow 24,000 acres	heasan	key, I	tuj' f	arily to wil	prim ilab	lies f ava	n app ies i	mio35eidT	SEX RATIO:	(7)	
	the report period.	daring	bevon	ty re	each catego	r in	admun	otal	Indicate t	REMOVALS:	(5)	
	ort period. This merege during certain									TOTAL:	(9)	
Also					ietermine po information					REMARKS:	(7)	
				nsed	ed bluoda be	zevo	a ho.t	teq e	is of pideo	tiqqs appli	0 *	
Elst .co.												

### Form NR-2 - UPLAND GAME BIRDS.\*

(1)	SPECIES:	Use	correct	common	name.
( - )	OI HOIHO.	050	COLIGOO	COMMOII	11cmic 9

Pertinent informatio

(2) DENSITY:

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

Refuge Red Rock Lakes

Calendar Year 1969

(1) Species	(2) Density	(3) Young Froduced			ova (jt)				(5) sses	In	(6) troductions	(7) Estima Total R Popula	efuge	(g) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-	Sold	For Research	Predation	Disease	Winter	Number	Source	At period of Greatest use	As of Dec.	
Black Bear Elk	a should be detailed enough soure the general picture. land, bottomiand bardwoods. Wild its Management Series ald be based on notus! obes!	over type to of an election of test to	1	a os a os all all all all all all all all all al	do do tov (s	cover but r e, re type	To go go go go go go go go go go go go go	der der der der des	the a traformand and be are p	ni ber lau le , c	nanges oddu ish the des prude swamp rass prairi hould be us	3	1	M:F
Mule Deer	elques to sale bus been bout	DELYSY ME	3	inen Etem	9 8 H	lqmaa te buu	ev be	28	resen to ind	jor i bli	od counts of	150	50	40:60
Moose	legal.	6	4	ed S	iuo	te	m d		Lates	bet	ord: Restm	45	20	M29
Antelope	during the year.	64	2	rdes	ďa	is al	701	SUST	Tajo	1. 531	Indic	147		F54 Y64
nl	essee indicate total losses	tias side	tila	10	8.0 75.0	redora	iren B		to at	and a total	On the	LCSSES:		
	.beruses sow Moods Molfe	mort you	13.8	20	180	197 A	ta f	ed;	ain od	934	SS: India	ortoudate:		
85	on the refuge at period of t	sectos;	los Doc	30	mo	tialn kala	iod.	36. 001	an Lina bunda	od tes	avid Sesta	DUTAL MISTOR POPULATION	(7)	
cort	l each apecies as determined	femmins o	ba Isa	20	isa da	la a	10	195°	eq ed.	eds easio	offsi Sinty	SEE PATECE	(3)	

Remarks:

#### INSTRUCTIONS

### Form NR-3 - BIG GAME

M: F

00:01

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisians white-tailed deer.
- DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

Reported by - Ronald V. Fandles

- (4) REMCVALS: Indicate total number in each category removed during the year.
- (5) LCSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE
  POPULATION: Give the estimated population of each species on the refuge at period of its
  greatest abundance and also as of Dec. 31.
- (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1757 Form NR-7 (Rev. June 1960)

# NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge	Red Rock Lakes	Year	19	6
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	(See			s and Recks, tre			Plantings (Marsh - Aquatic - Upland)								
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss		
							Sparrow Pond, east shore.		150 yards	100 Scirpus acutus, rootstocks, 50 Carex rostrata, rhizomes	8/21	Unknown			

(1) Report agronomic farm crops on Form NR-8 (2) C = Collections and R = Receipts	Remarks:	Results	to be	evalua ted	during	the 1	970 summ	er.	
(3) Use "S" to denote surplus									
Cotal acreage planted:									
Marsh and aquatic 150 yards shoreline									
Hedgerows, cover patches									
Food strips, food patches									
Forest plantings									

3-1758 Form NR-8 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Cultivated		ittee's Harvested		nment's Sl		Return rvested	Total	Green Manure, Cover and Water-		Total Acreage
Crops Grown	Acres	Acres Bu./Tons		Bu./Tons	Acres	Bu./Tons	Acreage Planted	fowl Bro	owsing Crops i Kind	
NONE	toron - pehone de mager constant pe prings of this	- egoro grizzato est duri de contrat est prime de contrata est prime	rechests byunese	Elera energy place a second control of custom and control of custom and control of custom and control of custom and custo	ong grad, Appela as	A di sepas and sample of the sepas and sepas a		NONE		IND - CENTALINE TO SOUNT ME-E
	ter Distance Cales	rolreteW has to	resq - paper, s had my salon, tacons or red o	b sid tol batas side Lamouro s alesterd to to	escedof goodse	mon eds vino - binode filence brain lo siente tal lo siente tal lo siente tal	to der lett bericken bedmid meed se er mil berickens	Fallow A	ag. Land	TOWER BUT BARBATA
		2 0			**		0	0 .		30
o. of Permittees:	Agricultur	al Operation	ons NONE		Haying (	Operations	2	Grazing	g Operations	19
Hay - Improved (Specify Kind)	Agricultur Tons Harvested	Acres	Cash Revenue		Haying (	Numi	18 18 18 18	Grazing	Cash Revenue	19 ACREAGE
Hay - Improved	Tons		Cash	e	83	Numi	ber mals		Cash	
Hay - Improved	Tons		Cash	e 1.	RAZING	Num Ani	ber mals	AUM'S	Cash Revenue	ACREAGE
Hay - Improved	Tons		Cash	e 1. 2.	Cattle Other	Numl Anix	ber mals	AUM'S 2,822.04	Cash Revenue 25,644.08	ACREAGE

## DIRECTIONS FOR PREPARING FORM NR-8 CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under <u>Cultivated Crops</u>, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

### REFUGE GRAIN REPORT

(1)	(2) On Hand	(3) Received	(4)		GRAIN D	SPOSED OF		(6) On Hand	(7) Proposed or Suitable Use*		
VARIETY*	BEGINNING of Period	During Period	Тотац	Transferred	Seeded	Fed	Total	END OF PERIOD	Seed	Feed	Surplus
Wheat	2,000	1,500bu.	3,500			1,000	1,000	2,500		2,500	
	(9) Wh	rest railro are stored o icate here	ad station f n refuge: "H	er shippin eadquarte f grain si	rs granary, apped in, o	etc.	of grain tr	ansferred, d	its on con-		
		otal of colu umn 4 less		oiau pà as	gieties of p	rain liste	i in column	6. Indicate	If grain is		
	(1) List h n w (3) Rej	chrid corn, ilo, new er ill not suffi her refuge ort all gra	a cowpeas, 1 ce, as specif s. Include of a received of	a, red May likado soy a detaila a aly domes uring per	wheat, du beans, etc re necessa tic grains;	nm wheat . Mere l ry in cons aquatic m	corn, yellov spring whe sting as cor idering tran d other seed such as tran	tt, proso mil a, wheat, ar afer of seed s will be liste			
(1) (6) 52	make shall be the darkey and—50 No.	green in a considere 50 lb, ry in compa	-55 lb., oa	8 80 Ip.s	soy beens-		55 lb., corn sitist—50 lb contents (cu	combess-	t elications of anti-		

(10) Remarks supplemental winter swan feed.

<sup>\*</sup>See instructions on back.

### The state of the s

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.

L,500but

TT MILL OF EMEN TOSC \*

(6) Column 4 less column 5.

S, 000

- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

T3 000

T,000

2,500

### DISEASE

Refuge Red Rock Lakes	Year 19.69						
Botulism	Lead Poisoning or other Disease						
Period of outbreak	Kind of disease						
Period of heaviest losses	Species affected						
Losses:  Actual Count Estimated  (a) Waterfowl (b) Shorebirds (c) Other	Number Affected Species Actual Count Estimated						
Number Hospitalized No. Recovered % Recovered	Number Recovered_						
(a) Waterfowl (b) Shorebirds (c) Other	Number lost Source of infection						
Areas affected (location and approximate acreage)	Water conditions						
Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.	Food conditions						
NO DISEASE NOTED THIS YEAR.							
Condition of vegetation and invertebrate life	Remarks						
Remarks							

3-1761 Form NR-11

### TIMBER REMOVAL

Permittee	Permi	t No.	Unit	; or	Acr	eage		Expr	esse '., t	Units ed in lies,	Ra o Cha	f	Total Income	Reservations and/or Diameter Limits	Species Cu
			NO	TII	ВЕ	R R	E M	o v	ED	тн	IS	Y E .	AR.		
			9												

No. of units removed B. F. Method of slash disposal

Cords Ties

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge

Red Rock Lakes

Proposal Number

Reporting Year 1969

INSTRUCTIO	NS: Wildlife Refuges M	anual, secs. 3252d, 3394b ar	nd 3395.					
Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemic <b>al(</b> s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		NO PESTICI	DES WE		DTHISY	EAR.		

<sup>10.</sup> Summary of results (continue on reverse side, if necessary)